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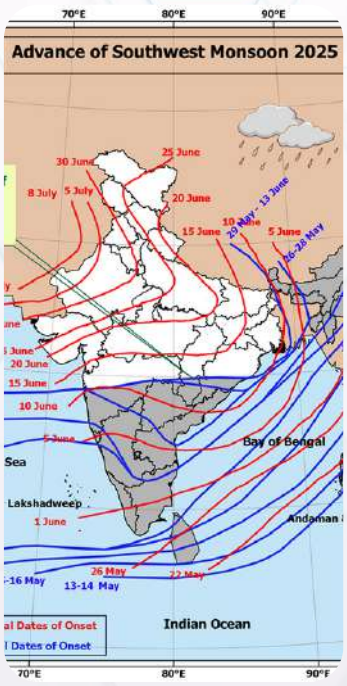
MONTHLY CURRENT AFFAIRS

FOR UPSC CIVIL SERVICE EXAMINATION

MAY 2025



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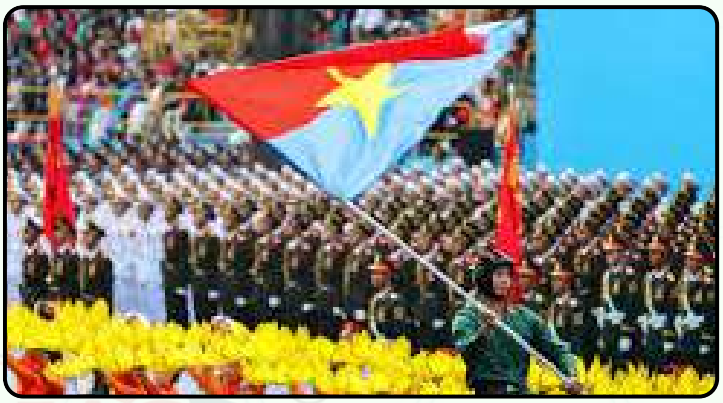
50 Years of the Vietnam War

Context: April 30, 2025, marks 50 years since the end of the Vietnam War, with the fall of Saigon in 1975.

How the War Began



- Colonial Rule: Vietnam was under French control since the mid-1800s.
- WWII Shift: Japan took over during WWII. Ho Chi Minh formed the Viet Minh to fight back.
- Post-War Resistance: After WWII, France tried to re-colonize Vietnam, triggering the First Indochina War (1946–1954).
- Geneva Accords (1954):
  - Vietnam was split at the 17th Parallel:
    - North: Ho Chi Minh (Communist)
    - South: Emperor Bao Dai (later Diem)
  - Elections to reunite were cancelled by Diem, with US backing.

US Entry & Escalation

- Cold War Context: US feared the Domino Effect—if Vietnam fell to communism, others like Laos and Cambodia might too.
- Gulf of Tonkin Incident (1964): Alleged North Vietnamese attack on US ships led to full-scale US military involvement.
- Tet Offensive (1968): A surprise attack by North Vietnam eroded US public support for the war.

End of the War

- Public Outcry: Anti-war protests intensified in the US after the Tet Offensive and events like the My Lai Massacre.
- Nixon's "Vietnamization":
  - US troops gradually withdrew.
  - Bombing extended to Laos and Cambodia.
- Paris Peace Accords (1973):
  - Ceasefire and US troop withdrawal agreed.
  - But fighting continued between North and South Vietnam.
- Fall of Saigon (1975):
  - North Vietnamese captured Saigon, renamed it Ho Chi Minh City.
  - Vietnam was reunified under Communist rule in 1976.

Impact of the War

- Human Cost:
  - 58,000 US soldiers killed, 3 million Vietnamese affected.
  - Use of Agent Orange caused birth defects, cancers, and environmental damage.
- US Political Fallout:
  - Public lost trust in government (Pentagon Papers revealed lies).
  - War Powers Act (1973) passed to limit presidential military powers.
  - Rise of Vietnam Syndrome—reluctance for future wars.

India's Role

- Diplomatic Stand: India stayed non-aligned but supported North Vietnam's anti-colonial struggle.
- Support:
  - Recognized North Vietnam early.
  - PM Nehru condemned the war as "neo-colonialism".
  - India advocated for peace and condemned chemical warfare.

Conclusion

The Vietnam War was more than a military conflict—it reshaped geopolitics, challenged superpower interventionism, and left lasting human and political scars. On its 50th anniversary, it serves as a lesson on the costs of ideological wars.

Vikramaditya I Inscription Found in Davangere

Context: A 7th-century stone inscription from the reign of Vikramaditya I (654–681 AD) of the Badami Chalukya dynasty was recently discovered in Davangere district, Karnataka.

About the Badami Chalukyas

- Founded by: Pulakesin I in 543 AD, with Badami as the capital.
- Region: Controlled large parts of Deccan, mainly present-day Karnataka and Maharashtra (6th–8th century CE).
- Later Dynasties:
  - Split into Western Chalukyas of Kalyani and Eastern Chalukyas of Vengi.
- Architecture:
  - Known for Vesara style (Karnata Dravida).
  - Famous temples:
    - Virupaksha Temple at Pattadakal
    - Lad Khan Temple at Aihole
- Notable Rulers:
  - Pulakesin I, Kirtivarman I, Pulakesin II (defeated Harshavardhana).
- Decline:
  - Began after Pulakesin II's death in 642 AD.
  - Last ruler: Kirtivarman II (746–753 AD).

Revival of Ayurvedic Manuscripts

Context: The Central Council for Research in Ayurvedic Sciences (CCRAS) has revived two important Ayurvedic texts — Dravyaratnakara Nighantu and Dravyanamakara Nighantu.

1. Dravyaratnakara Nighantu

- Author: Mudgala Paṇḍita (written in 1480 AD).
- Content:
  - A detailed lexicon of Ayurvedic drugs, including synonyms, properties, and uses.
  - Covers substances from plant, mineral, and animal origins.
- Sources: Based on earlier works like Dhanvantari and Raja Nighantu, with additional new entries.
- Significance: Frequently referenced in Maharashtra up to the 19th century.

2. Dravyanamakara Nighantu

- Author: Attributed to Bhisma Vaidya.
- Nature: Supplement to the Dhanvantari Nighantu.
- Focus:
  - Specializes in homonyms (same names used for different drugs or plants).
  - Essential for preventing confusion in drug identification.
- Relevance: Useful in specialized Ayurvedic fields like:
  - Rasashastra (alchemy and minerals)
  - Bhaishajya Kalpana (pharmaceutical preparations)
  - Classical pharmacology

Gundaram Inscriptions Discovered in Telangana

Context: The Archaeological Survey of India (ASI) recently found 11 inscriptions from the Satavahana period in the Gundaram Reserve Forest, Telangana.

Key Details:

- Location: Rock surface known as Sitammalodi.
- Time Period: Dates from 1st century BCE to 6th century CE.
- Significance:
  - Offers rare insights into early Deccan history, especially under the Satavahanas.
  - Highlights cultural, religious, and political developments.

About the Satavahana Dynasty

- Time Period: 1st century BCE – 3rd century CE
- Founder: Simuka, post-Mauryan period
- Capital: Pratishthana (modern Paithan, Maharashtra)
- Region: Controlled large parts of Maharashtra, Telangana, Andhra Pradesh, and surrounding areas.

Notable Rulers:

- Satakarni I: Expanded territory; performed Vedic sacrifices like Ashvamedha.
- Gautamiputra Satakarni: Most powerful ruler; defeated Western Kshatrapas.

Key Contributions:

- Trade:
  - Controlled the Dakshinapatha trade route.
  - Engaged in maritime trade with the Roman Empire.
- Religion:
  - Supported Buddhism; funded cave complexes at Ajanta, Karla, Amaravati.
- Architecture:
  - Built stupas, viharas, and chaityas; notable ones at Amaravati and Nagarjunakonda.
- Coinage:
  - Issued coins in lead, copper, and silver with Prakrit and Brahmi scripts.
- Literature:
  - Promoted Prakrit; famous work: Gatha Saptashati (collection of poems).

Guttala Sculptural Inscription Found in Karnataka

Context: A 16th-century inscription was discovered near the Chandrashekara Temple in Guttala, Haveri district, Karnataka.

Key Highlights:

- Date: August 18, 1539 CE (Saka 1461, Vikari, Bhadrapada su.5)
- Language: Kannada
- Medium: Inscribed on a stone slab

What It Depicts:

- Records the death of 6,307 people due to "bara" (famine/drought).
- The sculpture shows a person carrying a basket of bodies on his head.

Significance:

- Considered the first known inscription in India that documents a humanitarian disaster caused by a natural calamity.
- Offers rare insight into historical climate-related events and their social impact.

Piprahwa Relics Controversy

Context: India has issued a legal notice to Sotheby's auction house and the Peppé family, demanding a halt to the auction of the Piprahwa relics, citing violations of cultural and legal norms.

About Piprahwa Relics

- Discovered in 1898 by British engineer William Claxton Peppé in Piprahwa, Uttar Pradesh (near the India-Nepal border).
- The site is believed to be ancient Kapilavastu, the capital of the Shakya republic (Buddha's clan).

What the Relics Include

- Bone fragments, crystal and soapstone caskets, a large sandstone coffer, and offerings like:
  - Gold ornaments
  - 1,800 pearls
  - Rubies, topaz, sapphires

Cultural Significance

- Believed to be from one of the original eight stupas containing the Buddha's cremated remains.
- The Shakya clan likely built the Piprahwa stupa to honour the Buddha.
- The relics date back to the Mauryan era (around 240–200 BCE).

Exclusion of Trans Persons from Blood Donation

Context: The Supreme Court recently directed the Central Government to seek expert medical opinion on the 2017 blood donation guidelines that bar transgender persons, gay men, and sex workers from donating blood — calling the ban discriminatory and stigmatizing.

Background:

- 2017: NBTC guidelines banned transgender persons, gay men (MSM), and sex workers from donating blood.
- 2023: SC said public health concerns shouldn't override dignity and equality.
- 2025: SC asked the government to re-evaluate the scientific and legal basis of the ban.

Why the Ban is Problematic (Petitioners' View):

- Violates Rights: Blanket identity-based bans go against Articles 14 (equality), 15 (non-discrimination), and 21 (right to life & dignity).
- Unscientific: Modern tests like NAT and ELISA can detect HIV and Hepatitis, making such bans unnecessary.
- Stigmatizing: Labels entire communities as "high-risk" without assessing individual behaviour or medical history.

Government's Argument:

- Precautionary Measure: Due to lack of uniform high-tech screening, identity-based bans are seen as safer.
- Administrative Ease: Screening individuals by behaviour is logistically hard.
- Global Practice: Some countries also had similar policies in the past.

Who is a Transgender Person?
As per Transgender Persons (Protection of Rights) Act, 2019:

- A person whose gender identity doesn't match the sex assigned at birth.
- Includes trans men/women, intersex, non-binary, Hijras, Kinnars, etc.

Welfare Schemes for Transgenders:

- National Council for Transgender Persons (NCTP): Advises govt & monitors policies.
- Garima Greh: Shelter homes for skill training & support.
- Ayushman Bharat TG Plus: Covers surgeries, hormone therapy, and counselling.
- SMILE Scheme: Livelihood & rehabilitation support.

Issues with Blanket Bans:

- Promotes Misinformation: Links identity to disease instead of behaviour.
- Discourages Healthcare Access: Fear of humiliation keeps transgender persons away from health services.
- Ignores Scientific Progress: Testing technologies today can ensure safe donations without identity-based exclusions.

Way Forward:

- ✅ Shift to Behaviour-Based Risk Assessment (used in UK, Canada).
- ✅ Update blood testing facilities across India with NAT & ELISA.
- ✅ Revise NBTC Guidelines (Clause 12) to remove identity-based deferrals.
- ✅ Protect privacy & ensure consent during blood donation.
- ✅ Include trans representatives in policy-making.
- ✅ Align laws with the 2019 Trans Act that bans discrimination in healthcare.

Conclusion:
The Supreme Court's intervention is a step toward inclusive, evidence-based health policy. Blood donation should be about safety, not stigma — and transgender persons must be treated with dignity and equality in civic duties.

World Social Report 2025

Context: The United Nations' World Social Report 2025 highlights growing economic insecurity, inequality, and declining trust, and calls for global policy reforms based on equity, solidarity, and economic security.

About the Report:

- Published by: UN Department of Economic and Social Affairs (UN DESA), with UNU-WIDER.
- Purpose: Tracks global social development trends and challenges.
- Focus (2025): Inequality, poverty, job insecurity, weakening trust in institutions, and the impact of climate and conflict.

Key Highlights:

🔴 Economic Insecurity:
- 60% of the world's population faces economic insecurity.
- Over 690 million people still live in extreme poverty.

⚖️ Growing Inequality:
- Inequality increased in 2/3rd of all countries.
- Top 1% holds more wealth than 95% of the global population.

👷 Job Insecurity:
- Informal and unstable jobs dominate in Africa & South Asia.
- Leads to low wages, lack of protection, and greater vulnerability.

❌ Declining Trust in Institutions:
- Over 50% of people don't trust their governments.
- Caused by misinformation, governance failures, and social divides.

🌍 Climate & Conflict Impact:
- 1 in 5 people faced climate-related disasters in 2024.
- 1 in 7 was affected by conflict, eroding development progress.

⚠️ Policy Gaps:
- Weak social security, unfair taxation, and underfunded public services are widening the gap between rich and poor nations.

Conclusion:

The World Social Report 2025 stresses the need for a new global consensus to address worsening social inequalities and promote inclusive, secure, and sustainable development. It aligns with the goals of Agenda 2030 and calls for urgent international cooperation to protect vulnerable populations.

Civil Registration Reports

Context: The Registrar General of India (RGI) released birth and death data for 2021 after a five-year gap, including the Civil Registration System (CRS) and Medical Certification of Cause of Death (MCCD) reports.

What are Civil Registration Reports?

- Nodal Ministry: Ministry of Home Affairs
- Legal Basis: Registration of Births and Deaths Act, 1969
- Purpose:
  - Track birth & death rates
  - Support health & welfare planning
  - Record medically certified causes of death
  - Guide demographic policies

Key Reports:

1. Vital Statistics of India (CRS): Official data on registered births & deaths.
2. Sample Registration System (SRS): Survey-based estimates (includes unregistered events).
3. Medical Certification of Cause of Death (MCCD): Focuses on medically certified deaths and causes.

About the Registrar General of India (RGI):

- Founded: 1949
- Rank: Joint Secretary-level civil servant
- Functions:
  - Conducts Census every 10 years
  - Maintains birth and death registration system
  - Leads demographic and linguistic surveys

Key Findings – 2021 Reports

📊 Report 1: Vital Statistics (CRS)

- Registered Deaths:
  - 2021: 102.2 lakh
  - 2020: 81.2 lakh
  - 2019: 75.9 lakh
  - → 26% increase from 2020 to 2021 (due to COVID-19 impact).

🏥 Report 2: Medical Certification of Cause of Death (MCCD)

- COVID-19 Deaths:
  - 2020: 1.6 lakh
  - 2021: 4.13 lakh
- Total Medically Certified Deaths:
  - 2021: 23.95 lakh (↑ 5.83 lakh from 2020)

Conclusion:

The 2021 civil registration data reflects the devastating impact of COVID-19, especially seen in the spike in deaths and certified COVID cases. These reports are crucial for policy-making, public health planning, and strengthening India's civil registration infrastructure.

India's Maternal Mortality Ratio (MMR) Falls Further

Context: India's Maternal Mortality Ratio (MMR) has declined to 93 deaths per 1 lakh live births in 2019–21, continuing a steady national improvement in maternal health.

What is MMR?

- Defined by WHO: MMR = Number of maternal deaths per 1,00,000 live births
- Includes: Deaths during pregnancy, childbirth, or within 42 days after termination of pregnancy due to pregnancy-related causes
- Significance: A key indicator of maternal healthcare quality, access to medical services, and public health infrastructure

State-wise Performance

🟥 High MMR States (Above National Average):

- Madhya Pradesh: 175
- Assam: 167
- Uttar Pradesh: 151
- Odisha: 135
- Chhattisgarh: 132
- West Bengal: 109
- Haryana: 106

✅ Better Performing States:

- Kerala: 20 (Lowest in India)
- Maharashtra: 38
- Tamil Nadu: 54
- Andhra Pradesh: 54
- Karnataka: 63 (Highest among southern states, but below national average)

Conclusion:

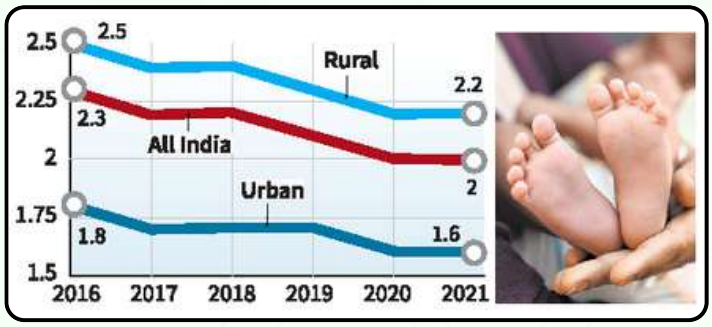
India's declining MMR is a positive sign of improved maternal health services, but regional disparities remain a concern. Focused attention on high-burden states is essential to reach the Sustainable Development Goal (SDG) target of reducing MMR to 70 or below by 2030.

India's Total Fertility Rate (TFR) Steady at 2.0

Context: According to the Sample Registration System (SRS) Report 2021, India's Total Fertility Rate (TFR) remains unchanged at 2.0, indicating that the country is below replacement-level fertility.

What is TFR?

- Definition: TFR is the average number of children a woman is expected to have during her reproductive age (15–49 years), based on current fertility patterns.
- Benchmark:
  - Above 2.1 → Population Growth
  - 2.1 → Replacement Level (Stable population)
  - Below 2.1 → Population decline and aging



State-wise TFR (2021)

Category	State/UT	TFR
▲ Highest TFR	Bihar	3.0
	Assam	2.1
	Gujarat, Haryana	2.0
▼ Lowest TFR	West Bengal, Delhi	1.4
	Kerala, Maharashtra, Tamil Nadu, Andhra Pradesh, J&K, Punjab	1.5

Why Replacement Level Matters?

- Replacement-level fertility (TFR = 2.1) is the rate at which a population exactly replaces itself from one generation to the next.
- Essential to avoid long-term issues like:
  - Aging population
  - Shrinking workforce
  - Economic slowdown

Implications for India:

- India's overall TFR below 2.1 suggests the population is stabilizing.
- However, regional disparities exist — some states exceed, while others fall far below the replacement level.
- Policy Challenge: Balance between population control in high TFR states and boosting fertility in low TFR states to maintain a balanced demographic structure.

Conclusion:

India reaching near replacement-level fertility is a sign of maturing population dynamics. Going forward, state-specific population strategies will be key to managing regional imbalances and ensuring sustainable socio-economic growth.

Jenu Kuruba Tribe Asserts Forest Rights

Context: Recently, members of the Jenu Kuruba tribe entered Nagarahole Tiger Reserve (NTR) to reclaim land under the Forest Rights Act (FRA), 2006, highlighting the ongoing conflict between conservation policies and tribal rights.

Who are the Jenu Kurubas?

- Status: Recognized as a Particularly Vulnerable Tribal Group (PVTG)
- Region: Primarily found in Kodagu and Mysore districts of Karnataka
- Name Origin: 'Jenu' means honey in Kannada – reflects their traditional occupation of honey collection

Living and Lifestyle:

- Live in forest settlements called "Hadi"
- Rely on honey collection, food gathering, and forest produce for livelihood
- Practice subsistence living closely tied to nature

Social Structure:

- Yajamana – Community headman, handles daily affairs
- Gudda – Ritual leader, manages religious functions
- Community-led system ensures self-governance and cultural autonomy

Beliefs and Traditions:

- Worship local deities like Odathi (goddess) and Ajjayya (god)
- Rich cultural heritage of songs and dances centered on:
  - Marriage
  - Farming
  - Religious myths
  - Forest life

About the Forest Rights Act (FRA), 2006:

- Full Name: The Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006
- Nodal Ministry: Ministry of Tribal Affairs
- Objective:
  - Recognizes rights of STs and OTFDs living in forests for at least 3 generations before 13 December 2005
  - Grants land ownership, habitat rights, and access to forest resources

Issues Highlighted:

- Conflict between tiger conservation efforts and tribal habitation rights
- Jenu Kurubas claim historical residence and cultural ties to the forest
- FRA implementation remains uneven, leading to frequent evictions and protests

Conclusion:
The Jenu Kuruba struggle reflects the broader challenge of balancing conservation with tribal rights. Upholding the FRA, 2006 is essential to protect the livelihood, dignity, and identity of India's forest-dwelling communities.

Monsoon Arrives Early in 2025

Context: The Southwest Monsoon arrived in Kerala on May 24, eight days earlier than the usual date of June 1, according to the India Meteorological Department (IMD).

- Last time this happened was in 2009, when monsoon arrived on May 23.

Why Did Monsoon Arrive Early in 2025?
Key Climatic Factors:

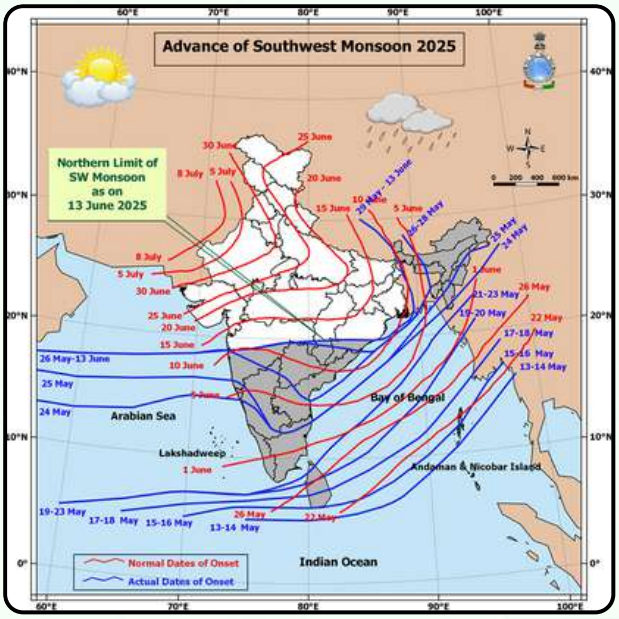
1. Active MJO (Madden-Julian Oscillation):
   - MJO in Phase 4 with high amplitude enhanced rainfall-producing clouds.
2. Strong Somali Jet & Cross-Equatorial Winds:
   - Brought in large moisture from the Indian Ocean, strengthening monsoon flow.
3. Pre-Monsoon Heat Low:
   - Formed over Pakistan and adjoining areas, pulled moist air inland and triggered early rains.
4. Enhanced Mascarene High:
   - A strong high-pressure area near Mascarene Islands supported powerful southwesterly winds.
5. Increased Convection:
   - Higher cloud formation due to warmer sea surface and land heating.
6. Reduced Himalayan Snow Cover:
   - Less snow in March–April 2025 led to greater heating, boosting land-sea temperature contrast.
7. Neutral ENSO & IOD Conditions:
   - No El Niño or La Niña – allowed smooth monsoon progression.
   - Indian Ocean Dipole remained neutral – no disruption to ocean temperatures.

What is the Onset of Monsoon?

- It marks the beginning of India's rainy season (June to September).
- Officially begins when monsoon winds hit Kerala.
- Brings over 70% of India's annual rainfall, vital for agriculture, water supply, and economy.

Key Terms You Should Know:

- ENSO: Ocean-atmosphere pattern in the Pacific.
  - El Niño: Warmer Pacific → weaker monsoon
  - La Niña: Cooler Pacific → stronger monsoon
- IOD: Temperature difference in eastern and western Indian Ocean
- MJO: Moving system of cloud and rainfall — brings rainy (wet) and dry phases every 30-60 days
- Mascarene High: A high-pressure zone over southern Indian Ocean
- Somali Jet: Moisture-rich winds from the east coast of Africa



Impacts of Early Monsoon Onset:

✅ Positive Impacts

- Timely sowing of Kharif crops like rice, pulses, cotton
- Early groundwater recharge and reservoir filling
- Cooler temperatures, less impact from heatwaves
- Boost to hydropower generation

⚠️ Negative Impacts

- If not followed by consistent rains → crop failure and re-sowing
- Urban flooding due to unprepared drainage systems
- Forecasting difficulties for farmers and water managers
- Disruption of traditional sowing calendars used by farmers and tribal communities

Conclusion:
The early arrival of the monsoon in 2025 shows how dynamic oceanic and atmospheric systems (like MJO, SSTs, and Somali Jet) can influence India's rainfall. It underlines the importance of accurate forecasting and adaptation planning to manage both agricultural benefits and disaster risks.

Western Disturbances: Off-Season Impact in 2025

Context: Recently, Delhi and surrounding regions experienced heavy rains and strong winds, leading to flight disruptions and waterlogging. The cause: a Western Disturbance.

What are Western Disturbances?

- Origin: Extra-tropical low-pressure systems that begin near the Mediterranean Sea.
- Movement: Travel eastward with the subtropical westerly jet stream.
- Moisture Source: Carry moisture in the upper atmosphere.
- Impact:
  - Bring rain in the plains and snow in the Himalayas, mainly in winter (Dec–Feb).
  - Crucial for rabi crop irrigation (especially wheat) in northwest India.

Recent Changes in Their Pattern

Traditional Pattern	Recent Developments
Mainly active during **winter**	Now occurring in **spring and summer** months too
Affected **western Himalayas**	Now reaching **central and eastern Himalayas**
Usually mild in intensity	Now causing **extreme rain, flash floods, landslides**
Had fixed eastward paths	Now show **north-south shifts** in movement

Why Are Western Disturbances Changing?

1. Global Warming:
   - Warmer temperatures → stronger subtropical jet streams → more powerful disturbances.
2. Arabian Sea Warming:
   - Sea surface temps up by 1.2–1.4°C
   - Adds extra moisture → makes WD systems more intense and year-round.
3. Enhanced Jet Stream Activity:
   - Jet streams are now wider and stronger, allowing WDs to travel longer distances.
4. Jet Stream Oscillations:
   - Increased meridional (north-south) swings → WDs now follow irregular paths.
5. Delayed Jet Retreat:
   - Slower retreat of jet stream delays monsoon → WDs overlap with monsoon systems, creating extreme weather events.
6. Continuous Moisture Supply:
   - From Mediterranean, Caspian, and Arabian Sea → supports WDs even in non-winter months.

Impacts of Changed Western Disturbances

✅ Positive
- Some benefit to pre-monsoon irrigation
- Increased snowfall aids glacier replenishment

⚠️ Negative
- Flash floods & landslides in hill states (HP, UK, J&K)
- Flight & transport disruptions in plains
- Unpredictable rainfall affects crop calendars and yields
- Delays monsoon onset, disrupts agricultural planning

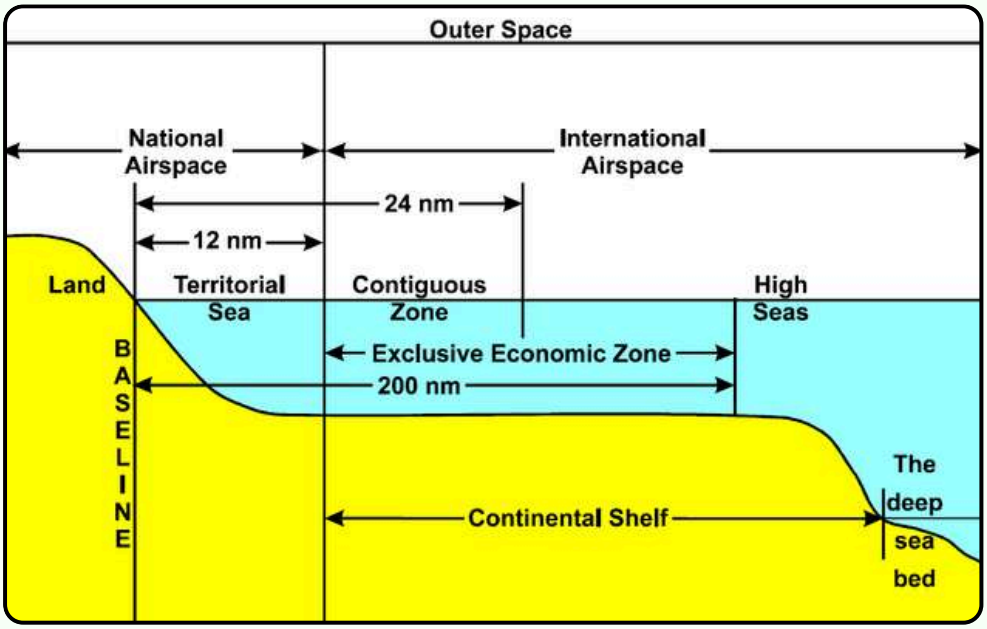
Conclusion:
The increasing frequency, intensity, and unpredictability of Western Disturbances is a climate change-linked phenomenon. Understanding and forecasting their evolving nature is vital for disaster management, agriculture, and infrastructure planning in India.

India's Extended Continental Shelf Claim

Context: India has expanded its maritime boundary by about 10,000 sq. km in the Central Arabian Sea.

This was done by submitting a revised claim to the United Nations Commission on the Limits of the Continental Shelf (CLCS) to:
- Avoid overlapping claims with Pakistan
- Strengthen India's strategic and resource rights

What is the Continental Shelf?
- The continental shelf is the submerged prolongation of a coastal state's landmass, extending beyond the Exclusive Economic Zone (EEZ).
- It includes the seabed and subsoil, but not the water column above it.



About CLCS (Commission on the Limits of the Continental Shelf)

Set up under - United Nations Convention on the Law of the Sea (UNCLOS), 1982
Mandate - Implements Article 76 of UNCLOS
Functions - Reviews scientific/geological data from coastal states

Significance of India's Claim

- 10,000 sq. km addition to India's seabed rights in the Arabian Sea
- Grants India access to minerals, oil, and gas in this new region
- Avoids territorial conflict with Pakistan by modifying the claim

Why It Matters for UPSC

- Reflects India's maritime diplomacy and UNCLOS engagement
- Shows India's commitment to rule-based international order
- Boosts strategic autonomy in the Indian Ocean Region (IOR)
- Supports blue economy and energy security

Conclusion:
India's move to expand its Extended Continental Shelf underlines its commitment to international law and secures valuable seabed resources. It also enhances India's geopolitical influence in the Arabian Sea while maintaining peaceful maritime relations.

Presidential Reference under Article 143

Context:

- The President of India has made a reference to the Supreme Court under Article 143, seeking its opinion on key constitutional issues, including:
- Role and discretion of Governors under Articles 200 & 201
- Whether courts can impose timelines on constitutional authorities
- Scope of judicial review before a bill becomes law
- Extent of Supreme Court's powers under Article 142

Background of the Case

- Though not named, the reference was prompted by the SC verdict in State of Tamil Nadu vs Governor of Tamil Nadu, which criticized delays by Governors in assenting to bills.
- The reference seeks clarity on 14 constitutional questions.

Key Constitutional Articles Involved

- Article 143 - President can seek SC's opinion on questions of law/public importance
- Article 200 - Governor's options for a state bill: assent, withhold, or reserve for President
- Article 201 - If a bill is reserved, the President must decide to assent or withhold
- Article 142 - SC can pass orders necessary for complete justice in any pending matter

About Presidential Reference (Article 143)

- 143(1) - For questions of public importance (opinion is advisory, not binding)
- 143(2) - For pre-Constitutional treaties or agreements (SC's opinion binding)

- Who Decides? - Made on advice of Council of Ministers – President has no discretion
- Minimum Bench Size - 5 judges (as per Article 145)
- Can SC Refuse? - Yes. SC declined once – in Ram Janmabhoomi case (1993)
- Nature of Opinion - Not binding, no precedential value, but carries persuasive weight

⚖️ Significance of Presidential Reference

- ✅ Constitutional Clarity: Helps settle unresolved constitutional questions
- ✅ Avoids Litigation: Prevents long court battles through early legal advice
- ✅ Institutional Harmony: Encourages coordination between executive and judiciary
- ✅ Guidance on Ambiguities: Can offer procedural solutions for grey areas in governance
- ✅ Promotes Cooperative Federalism: Clarifies the role of Governors, President, and States

⚠️ Challenges and Concerns

- ❌ Non-binding Opinion: SC's view may be ignored by the executive
- ❌ Vague Terms: "Public importance" is not clearly defined – may be misused
- ❌ Judicial Overreach?: Can courts set timelines for constitutional authorities?
- ❌ Political Pressure: References may drag judiciary into political issues
- ❌ Repetition: Some references revisit settled legal issues

Important Past Presidential References

- 1951 Delhi Laws Act - Limits on delegated legislation
- 1960 Berubari Union - Ceding Indian territory needs constitutional amendment
- 1974 Presidential Poll - Poll must continue even if state assemblies are dissolved
- 1978 Special Courts Bill - Court must not answer vague questions
- 1998 Third Judges Case - Established collegium system for judicial appointments
- 2012 2G Case - Clarified that auctions are not the only method for resource allocation

Conclusion:

The Presidential Reference under Article 143 is a vital constitutional mechanism for seeking legal clarity on complex issues. Though non-binding, the Supreme Court's opinion:

- Promotes judicial-executive cooperation
- Helps resolve constitutional uncertainties
- Strengthens federal and democratic values

It ensures the smooth functioning of democracy by enabling the judiciary to act as a constitutional advisor to the executive.

Deputy Speaker of Lok Sabha: Constitutional Anomaly

Context: The Deputy Speaker's post has remained vacant since May 2019, throughout the 17th Lok Sabha, and remains unfilled even 10 months into the 18th Lok Sabha — a clear constitutional violation.

About Deputy Speaker

- Constitutional Basis - Article 93: Lok Sabha must elect a Speaker and Deputy Speaker "as soon as may be"
- Position - 10th in Order of Precedence (shared with Deputy Chairman of Rajya Sabha, Ministers of State)
- Election - Elected by Lok Sabha after the Speaker is elected
- Removal - By resolution passed by majority of Lok Sabha (14 days' notice required)

Roles & Responsibilities

◆ Presiding Functions
- Acts as Speaker in their absence
- Maintains order, conducts debates, ensures decorum
- Decides on Points of Order

◆ Legislative Functions
- Casting vote in case of a tie (when presiding)
- Chairs parliamentary committees (if a member)
- Can preside over joint sessions if Speaker is absent

🔹 Administrative Duties
- Assists Speaker in managing House business
- Represents Lok Sabha at formal and diplomatic events

🔹 Quasi-Judicial Powers
- Can decide anti-defection cases under 10th Schedule (when acting as Speaker)
- Rules on breaches of privilege

VS Speaker vs Deputy Speaker

Feature	Speaker	Deputy Speaker
Election	First sitting of Lok Sabha	After Speaker is elected
Presiding Role	Regular presiding officer	Only in absence of Speaker
Voting	Only casting vote	Can vote when not presiding
Rank	6th (along with CJI)	10th

Implications of Vacancy

❗ Constitutional Violation
- Article 93 mandates early election — prolonged vacancy is non-compliance
- Undermines redundancy and resilience of parliamentary leadership

❗ Concentration of Power
- Speaker (often from ruling party) retains full control
- Loss of Opposition-led counterbalance

❗ Democratic Erosion
- Weakens bipartisanship and inclusive governance
- Affects credibility and impartiality of Parliament

❗ Procedural Disruptions
- Burdens the Speaker during long or emergency sessions
- Risks vacuum in case of Speaker's incapacity or resignation

❗ Public Trust Impact
- Normalizes constitutional neglect
- Dents India's democratic image and commitment to rule of law

Conclusion - The Deputy Speaker's vacancy is not just an administrative delay—it's a serious constitutional lapse. Fixing it needs:
- Amending Article 93 with a clear deadline
- Upholding democratic conventions like Opposition representation
- Judicial enforcement and civil society vigilance

Timely filling of this post is essential to preserve checks, balances, and the dignity of Parliament.

Removal of a High Court Judge

Context: Chief Justice of India (CJI) has forwarded an inquiry report on Justice Yashwant Varma to the President and Prime Minister, recommending his removal over corruption allegations.

How the Process Started

- In-House Procedure: CJI constituted a 3-member panel under internal SC guidelines.
- Committee Members: Included:
  - Chief Justices of Punjab & Haryana and Himachal Pradesh HCs
  - One judge from Karnataka HC
- Based on findings, the report and judge's reply were sent to the President, initiating the formal removal process.

Constitutional Provisions

- Article 124 - Impeachment of Supreme Court judges (via Parliament)
- Article 217 - Deals with appointment/removal of High Court judges

Removal Procedure under Judges (Inquiry) Act, 1968

◆ 1. Initiation of Motion
- Requires support of:
  - 100 Lok Sabha MPs or
  - 50 Rajya Sabha MPs

◆ 2. Admission by Presiding Officer
- Speaker (LS) or Chairman (RS) may admit or reject the motion.

◆ 3. Formation of Inquiry Committee
- If admitted, a 3-member committee is set up:
  - A Supreme Court judge
  - A High Court Chief Justice
  - A distinguished jurist

◆ 4. Investigation
- Committee frames charges, hears the judge's defense, and may recommend medical evaluation in case of incapacity.

◆ 5. Committee Report
- Not guilty → Motion dropped.
- Guilty → Report tabled in Parliament.

◆ 6. Parliamentary Vote
- Both Houses must pass the removal motion with a special majority:
  - Majority of total membership
  - Two-thirds of members present and voting

◆ 7. Presidential Assent
- After Parliament's approval, the President signs the order to remove the judge.

Key Points to Remember

- Motion Initiation - LS: 100 MPs / RS: 50 MPs
- Committee Composition - SC judge + HC CJ + jurist
- Special Majority - Majority of total + 2/3rd present & voting
- Final Authority - President of India

Conclusion - The removal of a High Court judge is a rare, serious, and constitutionally guarded process, ensuring judicial accountability without compromising independence. The recent case of Justice Yashwant Varma marks a significant step in enforcing judicial integrity through due process.

Disqualification of MLA – Karnataka Case

Context - BJP MLA G. Janardhan Reddy was disqualified by the Karnataka Legislative Assembly after being convicted in an illegal mining case by a CBI court in Hyderabad.

Legal Grounds for Disqualification

- Conviction & Sentence
  - Reddy was found guilty in the Obulapuram Mining Company (OMC) illegal iron ore mining case.
  - Punishment:
    - 7 years rigorous imprisonment
    - Fine imposed
- Section 8(3) – Representation of the People Act (RPA), 1951
  - Immediate disqualification if a legislator is:
    - Convicted
    - Sentenced to ≥ 2 years imprisonment
  - Disqualification starts from date of conviction.
- Lily Thomas Case (2013) – Supreme Court
  - Struck down Section 8(4) of RPA which earlier gave:
    - 3 months to appeal before disqualification.
  - Now, disqualification is immediate upon conviction.
- Future Ban from Elections
  - Reddy is barred from contesting elections for 6 years after release.
  - Unless his conviction is stayed or overturned by a higher court.

Disqualification under Representation of the People Act (RPA), 1951)

✅ Section 8(1): For Specific Offences
Disqualification upon conviction for:

- Promoting enmity (IPC 153A, 505)
- Bribery (171E)
- Undue influence/personation (171F)
- Rape and sexual offences (376–376D)
- Cruelty towards women (498A)
- Offences under:
  - Protection of Civil Rights Act, 1955
  - Prevention of Corruption Act, 1988

✅ Section 8(2): Economic and Social Offences

- Conviction under laws related to:
  - Hoarding
  - Profiteering
  - Adulteration of food/drugs
  - Dowry Prohibition Act, 1961
- Minimum sentence: 6 months

✅ Section 8(3): All Other Offences

- Conviction for any other offence with imprisonment ≥ 2 years
- Results in:
  - Immediate disqualification
  - Continues for 6 years after release

Conclusion -The disqualification of G. Janardhan Reddy highlights the strict legal framework under the RPA, 1951, ensuring that criminally convicted legislators are barred from holding office or contesting elections — reinforcing the principle of clean governance and electoral integrity.

Digital Access as a Fundamental Right

Context - In Amar Jain v. Union of India (2025), the Supreme Court held that inclusive digital access is a part of the Right to Life and Liberty under Article 21 of the Constitution.

Key Judicial Precedents:

- Anuradha Bhasin v. Union of India (2020): Internet access is a part of Freedom of Speech [Art. 19(1)(a)] and Right to Trade [Art. 19(1)(g)].
- Faheema Shirin v. State of Kerala (2019): Kerala HC recognized internet access as essential to the Right to Education and Privacy (Art. 21).
- Sabu Mathew George v. Union of India (2017): SC upheld the right to access online information, while allowing regulation of illegal content.

What is Digital Access?

- It includes access to the internet, digital devices, software, and online services.
- Vital for availing education, healthcare, governance, and welfare schemes.

Court's Reasoning:

- Article 21 covers digital access as an "instinctive" component of a dignified life.
- Emphasized Substantive Equality—digital platforms must be inclusive for persons with disabilities and marginalised groups.

Global Stand:

- The UN Human Rights Council (2016) declared internet access a human right.
- Countries like Finland, Estonia, and Costa Rica already recognize it.

Footpaths Recognized as a Constitutional Right

Context: The Supreme Court has ruled that the right to safe and accessible footpaths is part of the Right to Life under Article 21 of the Constitution.

What Did the Court Say?

- Walking safely is essential to live with dignity, especially in cities.
- Lack of footpaths endangers lives by forcing pedestrians to walk on roads.
- States and UTs must now form clear guidelines to ensure proper footpath access for all.

Why This Matters:

- Ensures pedestrian safety and reduces road accidents.
- Strengthens urban infrastructure accountability.
- Reinforces that public spaces must be inclusive and accessible to all citizens.

Constitutional Right vs. Legal Right

Constitutional Right

- Comes directly from the Constitution (e.g., Article 21)
- Enforced via writs under Article 32 (SC) or 226 (HC)

Legal Right

- Created by ordinary laws (e.g., RTI Act)
- Enforced through regular courts

Maternity Leave Recognized as a Reproductive Right

Context: The Supreme Court has ruled that maternity leave is part of a woman's reproductive rights, making it a core element of maternity benefits and essential to the right to health.

Key Highlights of the Judgment:

- Maternity leave is now linked to international human rights standards.
- It ensures that women can safely manage pregnancy and childcare without losing their job security.

Maternity Leave in India:

- Legal Backing: Provided under the Maternity Benefit Act, 1961 (amended in 2017).
- Constitutional Link: Tied to Article 42 (DPSP) – ensures humane working conditions and maternity relief.

Eligibility & Provisions:

- Eligibility - Applies to women in both public and private sectors (except firms with <10 employees or self-employed women)
- Duration - 26 weeks of paid leave for the first two children
- Adoption Leave - 12 weeks for mothers adopting a child below 3 months
- Crèche Facility - Mandatory in firms with 50+ employees; mothers can visit up to 4 times a day
- Job Security - Employer cannot terminate or demote during maternity leave

What Are Reproductive Rights?

- Rights related to sexual and reproductive health, protected under human rights law.
- Include access to:
  - Contraception
  - Abortion
  - Fertility treatments
  - Accurate health information
- Based on three key pillars:
  a. Self-determination over one's body
  b. Access to health services and education
  c. Equality and non-discrimination

World Press Freedom Index 2025

Context: India ranks 151st out of 180 countries in the 2025 World Press Freedom Index, released by Reporters Without Borders (RSF).

India's Ranking Overview:

- Improved slightly from 159 (2024) and 161 (2023).
- Still placed in the "very serious" category, indicating restricted media freedom.
- Ranked below several neighbours:
  - Nepal – 90
  - Maldives – 104
  - Sri Lanka – 139
  - Bangladesh – 149

Top 3 Countries (Best Performers):

1. Norway
2. Estonia
3. Netherlands

Global Trends:

- For the first time, global press freedom is in a "difficult situation."
- Economic pressures are a growing threat to media independence across the world.

About the Index:

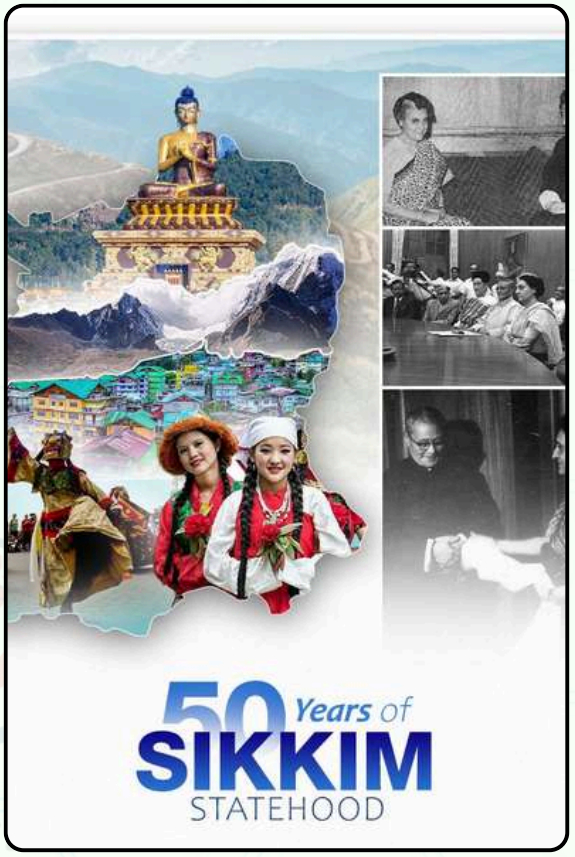
- Published by Reporters Without Borders (RSF), a global non-profit promoting journalistic freedom.
- Assesses the environment for journalists and their ability to work freely, safely, and independently.

Sikkim Celebrates 50 Years of Statehood (1975–2025)

Context:
Sikkim marks its Golden Jubilee, celebrating 50 years of becoming a full-fledged state of India in 2025.

A Brief History of Sikkim:

- Early Rule:
  - Founded in the 17th century by the Namgyal dynasty.
  - Ruled by Chogyals (Buddhist priest-kings).
- Colonial Period:
  - Became a princely state under British India in 1890.
- Post-Independence (1950):
  - Became an Indian protectorate after the Indo-Sikkimese Treaty.
  - India handled Sikkim's external affairs, defence, and communication.
- Statehood (1975):
  - In a referendum, the people voted to join India.
  - Became the 22nd state of India on May 16, 1975.
  - Formalized through the 36th Constitutional Amendment.



Mizoram Becomes India's First Fully Literate State

Context: Mizoram has been declared India's first fully functionally literate state, followed by Goa as the second.

Key Highlights:

- Program Behind the Achievement:
- The milestone was achieved through the implementation of ULLAS – Nav Bharat Saaksharta Karyakram.
- Ladakh First Admin Unit:
- Before this, Ladakh became the first administrative unit to achieve 100% literacy (June 24, 2024).

What is Functional Literacy?

- The ability to read, write, and do basic math needed for daily life.
- Helps with tasks like filling forms, reading signs, managing money, and understanding health info.

About ULLAS (New India Literacy Programme):

- A centrally sponsored scheme to promote adult literacy.
- Volunteer-driven, inspired by Jan Jan Saakshar (Literacy for All) and Kartavya Bodh (Sense of Duty).
- Target Group: Adults (15+) who missed formal education.
- Focus Areas:
  - Basic literacy and numeracy
  - Life skills
  - Lifelong learning
- Budget: ₹1037.90 crore (₹700 crore Centre + ₹337.90 crore States)

Deportation Issue in India

Context: The Supreme Court recently upheld the deportation of a Sri Lankan Tamil national, emphasizing that India cannot become a "dharamshala" (shelter) for all foreign nationals.

Key Supreme Court Observations:

- Right to Reside (Art. 19(1)(e)) is available only to Indian citizens.
- Articles 14 and 21 (equality and right to life) apply to all persons but do not guarantee the right to stay in India for foreign nationals.

What is Deportation?

- Deportation: Forceful removal of a foreigner for violating immigration rules or being a security threat.
- Extradition: A bilateral legal process where a country formally hands over an accused/criminal based on treaties.

Grounds for Deportation:

- Illegal entry or overstaying
- Visa violations
- Criminal activity
- Threat to national security

Notable Cases:

- Rohingya Case: SC allowed deportation of 7 Rohingya to Myanmar citing their illegal immigrant status.
- Sarbananda Sonowal v. UoI (2005): SC struck down IMDT Act for encouraging illegal Bangladeshi migration.

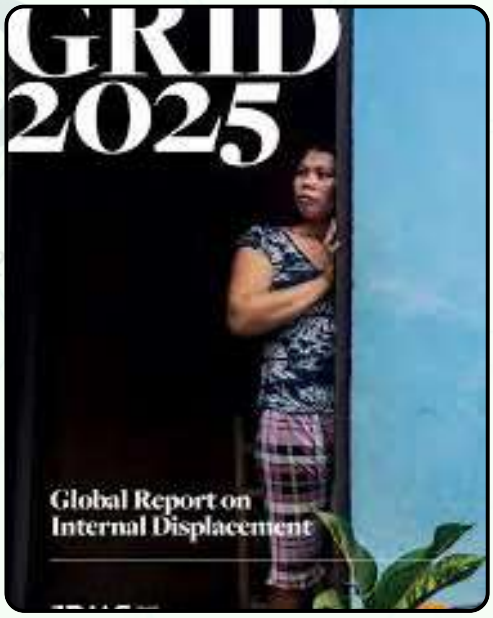
India's Sovereign Right:
India, as a sovereign nation, has full authority to regulate the entry and stay of foreigners.

- Foreigners Act, 1946 - Governs entry, stay, and deportation of foreigners
- Passport (Entry into India) Act, 1920 - Prohibits entry without valid passport/visa
- Registration of Foreigners Act, 1939 Requires foreigners to register for long stays
- Immigration (Carriers' Liability) Act, 2000 - Fines airlines for bringing undocumented persons

Key Terms:
- Asylum Seeker: Seeks protection but yet to be recognized as a refugee.
- Refugee: Recognized under law (like 1951 UN Convention) as needing protection.
- Illegal Migrant: Enters/stays without valid documents or overstays visa.

Global Report on Internal Displacements – 2025

Context: The Internal Displacement Monitoring Centre (IDMC) released its 2025 report on internal displacements worldwide.



What is Internal Displacement?
- Definition: Forced movement of people within their own country due to disasters, conflict, or development projects.
- Monitored by IDMC, a part of the Norwegian Refugee Council (NRC).

Key Highlights (2024 Data):
- Total Disaster Displacements: 45.8 million (highest since 2008)
- Conflict-Related Displacements: 20.1 million
- Still Displaced (from past disasters): 9.8 million
- Climate-Related Disasters: Caused 99.5% of disaster displacement

Top Country Affected:
- USA: Most affected with 11 million displacements, mainly due to wildfires
- 29 countries recorded their highest-ever disaster displacement figures

About IDMC:
- Founded: 1998
- Parent Organization: Norwegian Refugee Council (NRC)
- Functions:
  - Maintains the Global Internal Displacement Database (GRID)
  - Tracks and reports global internal displacement trends
  - Supports governments and UN bodies with policy-making based on data and research

Global Report on Food Crises – 2025

Context: In 2024, over 295 million people in 53 countries faced acute hunger, highlighting the 6th consecutive year of worsening global food insecurity.

Key Findings:

- Rising Hunger: Acute food insecurity increased by 13.7 million people in one year.
- Catastrophic Food Insecurity (IPC Phase 5):
  - 1.9 million people faced extreme hunger — highest since 2016, more than double from 2023.
- Children at Risk:
  - Around 38 million children under five suffered from acute malnutrition.
  - Worst-affected regions: Gaza, Mali, Sudan, Yemen.
- Top Cause – Conflict:
  - Around 140 million people in 20 countries faced hunger due to war and instability.
- Other Causes:
  - Displacement and climate events (like El Niño-induced droughts) worsened the situation.

About the Report:

- Name: Global Report on Food Crises (GRFC)
- Published By: Global Network Against Food Crises (GNAFC) – includes EU, FAO, WFP, etc.
- Focus: Populations facing acute food insecurity (not chronic hunger).
- Purpose:
  - Guide humanitarian aid and policy decisions.
  - Prevent famine and address root causes of food crises.

78th Session of the World Health Assembly – 2025

Context: In 2024, over 295 million people in 53 countries faced acute hunger, highlighting the 6th consecutive year of worsening global food insecurity.

About the World Health Assembly (WHA):

- Established: 1948
- Headquarters: Geneva, Switzerland
- Organized by: World Health Organization (WHO)
- Meets: Annually
- Functions:
  - Sets global health policies and WHO priorities
  - Approves WHO's budget and programmes
  - Elects the WHO Director-General (every 5 years)
  - Oversees global health responses and monitors SDG-3 (Good Health and Well-being)

Key Outcomes of WHA78 (2025):

Adoption of the WHO Pandemic Agreement:

- Aims to ensure equitable access to vaccines, medicines, and diagnostics during future pandemics.
- Key Provisions:
  - 20% production reserve: Manufacturers must reserve 20% of their products (vaccines, tests, medicines) for WHO during a pandemic.
  - PABS (Pathogen Access and Benefit-Sharing System): Ensures quick sharing of pathogen data with global producers.
  - Promotes the One Health Approach — integrating human, animal, and environmental health for pandemic prevention.
- Significance:
  - This is only the second legal treaty under Article 19 of the WHO Constitution.
  - The first was the Framework Convention on Tobacco Control (2003).

Budget Announcement:

- Approved a revised budget of $4.2 billion for the next two years.

Absence of the USA:

- For the first time since 1948, the United States — WHO's biggest donor (contributing nearly 1/5th of its $6.8 billion budget) — skipped the assembly.

MSMEs in India: A Growth Engine Facing Key Challenges

Context: NITI Aayog, in collaboration with the Institute for Competitiveness (IFC), released the report 'Enhancing MSMEs Competitiveness in India'.

What are MSMEs?

As per the MSMED Act, 2006 (updated in Union Budget 2025), MSMEs are classified based on investment and turnover:

ENTERPRISE CATEGORY	CURRENT INVESTMENT LIMIT	REVISED INVESTMENT LIMIT	CURRENT TURNOVER LIMIT	REVISED TURNOVER LIMIT
MICRO ENTERPRISE	₹1 crore	₹2.5 crore	₹5 crore	₹10 crore
SMALL ENTERPRISE	₹10 crore	₹25 crore	₹50 crore	₹100 crore
MEDIUM ENTERPRISE	₹50 crore	₹125 crore	₹250 crore	₹500 crore

Key Challenges Faced by MSMEs:

1. Low Formalisation
   - Only 9% MSMEs begin as registered firms.
   - Over 6.3 crore MSMEs exist, but many stay informal due to high compliance costs.
2. "Missing Middle" Problem
   - 98%+ are Micro units; very few are Medium.
   - Lack of mid-sized enterprises hampers scalable growth.
3. Limited Access to Credit
   - Only 19% of credit needs were met formally (FY21).
   - Estimated credit gap: ₹80 lakh crore.
   - CGTMSE helps but needs improvement.
4. Skill Gaps
   - Shortage of skilled manpower limits innovation and growth.
   - Decline in knowledge-based hiring reflects poor training access.
5. Lack of Product Diversification
   - Firms lack technical know-how and market awareness to diversify.
6. High Tax Compliance Burden
   - World Bank survey: Tax complexity is a major business hurdle.
7. Infrastructural Bottlenecks
   - Poor transport, power, storage, and marketing support hinder operations.

About CGTMSE:

The Credit Guarantee Fund Trust for MSEs provides collateral-free loans via Member Lending Institutions to Micro and Small Enterprises.

Way Forward:

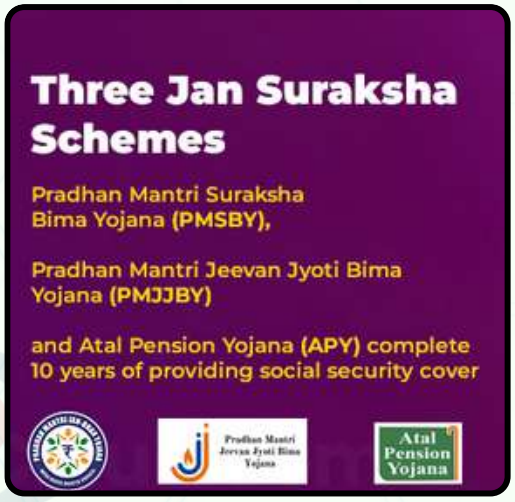
- Reform CGTMSE: Improve oversight and reduce risk premiums to expand credit access.
- Boost NBFCs: Increase funding to serve more MSMEs.
- Simplify Subsidy Access: Ease rules for financial schemes.
- Skill Development: Align training with industry needs.
  - Example: Andhra Pradesh's proposed Skill Census.
- Promote Digital Tools:
  - Example: Digital Saksham trained 5.6 lakh MSMEs in tech (2022–24).
- Support Exports & Certifications: Help MSMEs gain market access and improve quality.

Conclusion: With targeted reforms, India's MSMEs can become a pillar of inclusive and sustainable economic growth.

10 Years of Jan Suraksha Schemes: Social Security for All

Context: Launched on 9th May 2015, the three Jan Suraksha Schemes — PMJJBY, PMSBY, and APY — have completed a decade of offering affordable social security to the masses.

1. Pradhan Mantri Suraksha Bima Yojana (PMSBY)
- Type: Accident Insurance
- Eligibility: 18–70 years with a savings account (bank/post office)
- Coverage:
  - ₹2 lakh for accidental death or full disability
  - ₹1 lakh for partial disability
- Premium: ₹20/year (auto-debited)
- Renewable: Annually



2. Pradhan Mantri Jeevan Jyoti Bima Yojana (PMJJBY)
- Type: Life Insurance
- Eligibility: 18–50 years with a savings account
- Coverage: ₹2 lakh on death (from any cause)
- Premium: ₹436/year (auto-debited)
- Renewable: Annually

3. Atal Pension Yojana (APY)
- Purpose: Pension for unorganised sector workers
- Eligibility:
  - Age 18–40 years
  - Must not be an income tax payer
  - Savings account required
- Benefits:
  - Monthly pension of ₹1,000 to ₹5,000 after 60 years
  - Pension continues to spouse after subscriber's death
  - Nominee receives corpus after both pass away
  - Spouse can continue the scheme in case of early death of subscriber

Conclusion: These three schemes form the backbone of India's inclusive social security architecture, especially for the low-income and informal sector population, promoting insurance coverage and retirement savings.

WAVES 2025 & India's Rise in the Orange Economy

Context: On May 1, 2025, PM Narendra Modi inaugurated the WAVES 2025 Summit in Mumbai, spotlighting India's growing role in the orange economy.

What is WAVES?

WAVES (World Audio Visual & Entertainment Summit)

- Organized by: Ministry of Information & Broadcasting
- Theme 2025: "Connecting Creators, Connecting Countries"
- Purpose:
  - Promote media innovation, investment, and IP creation
  - Showcase India as a global media and entertainment hub
  - Encourage cultural exchange and creative collaboration

What is the Orange Economy?

Also known as the Creative Economy, it includes:

- Art, music, cinema, design
- Fashion, gaming, digital media, and software
- It is IP-driven, based on creativity and cultural value
- Globally, it boosts jobs, inclusivity, and knowledge-based growth

Why It Matters for India?

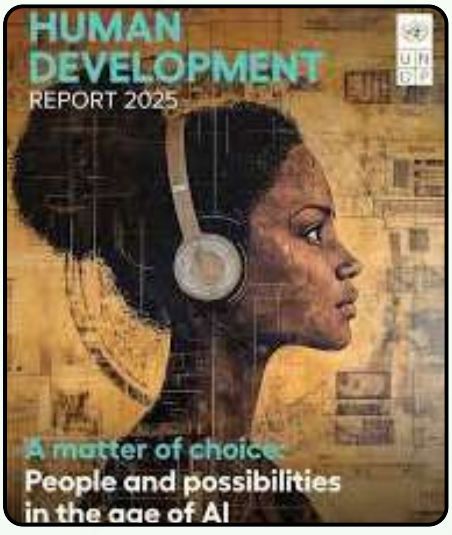
- Rising digital consumption in India supports media startups and creators
- Enhances India's soft power and cultural exports
- Helps India become a global creative economy leader

Human Development Report 2025: India at Rank 130

Context: India ranked 130 out of 193 countries in the UNDP Human Development Index (HDI) 2025.

Theme of HDR 2025:
"A Matter of Choice: People and Possibilities in the Age of AI"

- Focuses on Artificial Intelligence (AI) as a major factor shaping future human development, especially in developing countries.



India's HDI Performance:

- HDI Score (2023): 0.685 (up from 0.676 in 2022)
- Category: Medium Human Development (close to High)
- Global Rank: Improved from 133 → 130

About the Human Development Index (HDI):

- Launched by: UNDP in 1990
- Founders: Mahbub ul Haq & Amartya Sen
- Purpose: Measures overall human well-being, not just GDP

HDI Components:

1. Life Expectancy at Birth
   - India: 72 years in 2023
2. Education Index
   - Based on mean & expected years of schooling
   - Improved due to schemes like RTE Act, NEP 2020, Samagra Shiksha
3. Gross National Income (GNI) per Capita
   - India: $9,046 in 2023 (from $2,167 in 1990)

HDI Categories:

- 0.800 and above - Very High Human Development
- 0.700 – 0.799 - High Human Development
- 0.550 – 0.699 - Medium Human Development
- Below 0.550 - Low Human Development

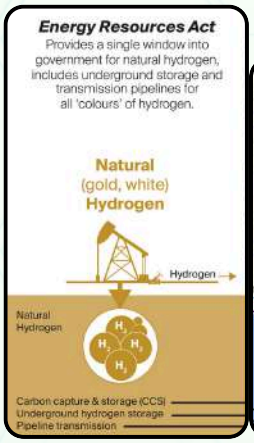
Natural Hydrogen: A New Clean Energy Frontier

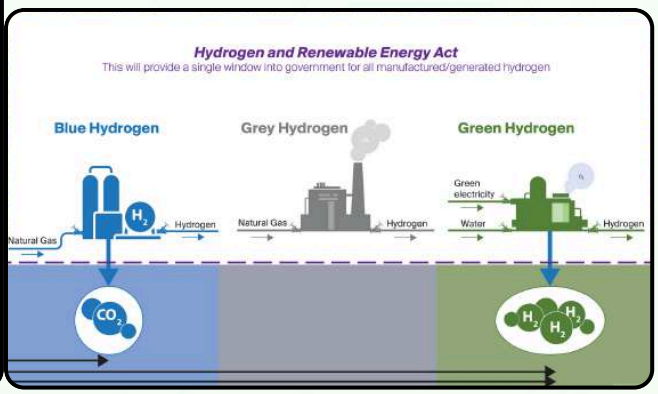
Context: Natural hydrogen is gaining attention as a low-cost, clean energy option to reduce dependence on fossil fuels.

What is Natural Hydrogen?

Also known as geologic hydrogen, it is found naturally underground, formed through geological processes like:

- Serpentinisation: When iron-rich rocks react with water in tectonic zones, releasing hydrogen gas.
- Radiolysis: Splitting of water molecules by natural radioactive decay of elements like uranium and thorium.
- Organic Decomposition & Volcanic Activity: Hydrogen is also released from organic-rich sediments and volcanic gases.





Why It Matters – Advantages of Natural Hydrogen

- Low Emissions: Almost zero carbon footprint, cleaner than grey or even blue hydrogen.
- Cheaper Production: Costs under $2/kg, while green hydrogen costs over $6/kg.
- High Energy Potential: According to the USGS, even 2% of global reserves can power the world for 200+ years.

Natural hydrogen, if harnessed responsibly, could be a game-changer for clean energy transition, offering a sustainable and affordable alternative to conventional hydrogen production.

Environmental Impact Assessment (EIA) and Supreme Court Verdict on Retrospective Clearances

Context: The Supreme Court has ruled that retrospective (post-facto) Environmental Clearances (ECs) are illegal under EIA rules.

Key Highlights of the Judgment:

- No Post-Facto Clearances:
- The Court declared that granting ECs after a project has begun is unconstitutional and violates core environmental principles.
- 2017 and 2021 Rules Struck Down:
- Notifications and Office Memorandums allowing post-facto ECs were struck down, though existing ECs under these rules remain valid.
- Environmental Protection Over Business Ease:
- The Court criticized the Centre for creating loopholes to benefit violators and stressed that true development includes environmental care.
- Polluter Pays Principle Reinforced:
- Allowing retrospective ECs undermines accountability, as violators escape penalties.
- The Court emphasized that polluters must pay for environmental damage.

Impact on Industries:

- Companies must now get ECs before starting any project.
- Violations could lead to project stoppage or demolition.
- Expect stricter enforcement of EIA norms and more public involvement in clearance processes.

What is EIA?
EIA is a process to assess the potential environmental, social, cultural, and health effects of a proposed project before it starts.

Conclusion: This landmark ruling strengthens environmental governance and sends a strong message that development cannot come at the cost of the environment.

Urban Biodiversity and the Need for Green Cities

Context: The Supreme Court recently halted tree-cutting in Kancha Gachibowli, Hyderabad—highlighting threats to India's urban forests due to rapid development.

What Is Urban Biodiversity?

Urban biodiversity refers to the variety of plants, animals, and microorganisms found in urban green spaces like parks, forests, wetlands, and gardens.

Why It Matters:
Urban forests act as lungs for cities—reducing pollution, lowering temperatures, and supporting ecological balance.

Global Efforts to Protect Urban Biodiversity:
UN's 3-30-300 Rule:

- 🌳 View of 3 trees from every home
- 🌳 30% tree cover in every neighborhood
- 🌳 Public green space within 300 meters of homes

Kunming-Montreal Global Biodiversity Framework:

- 🌿 Aims to improve urban green and blue spaces by 2030
- 🌿 Focus on biodiversity, ecological connectivity, and well-being

Frankfurt's Green Belt Model:

- 🌍 A circular green zone helped reduce city temperatures by 3.5°C

Challenges Facing Indian Cities:
Loss of Green Cover:

- Chennai lost 2.6 sq. km of green space (2021–2023)
- Delhi's AQI reached a dangerous 494 in 2024

Design Flaws:

- Most urban buildings lack eco-friendly features (like nesting spaces, green facades)

Vanishing Wetlands:

- Urban lakes and marshes face encroachment and pollution
- (Example: Pallikaranai marshland in Chennai)

Solutions and the Way Forward:

✅ Urban Planning Tools:
Cities should adopt the City Biodiversity Index and prepare Local Biodiversity Strategy and Action Plans (LBSAPs)
(Already used by Kochi, Nagpur, Gangtok)
✅ Green Urban Design:
Mandatory green zones in city layouts (e.g., Greater Chennai mandates tree planting for larger plots)
✅ Promoting Native Trees:
Chennai's Koyambedu Model planted 1+ million native trees since 2018
✅ Community Participation:
Delhi's rooftop garden scheme and free plant drives empower citizens
✅ Nature-Based Solutions (NbS):
Use of Miyawaki forests and constructed wetlands for dense, fast-growing green zones

- Koyambedu Model - Urban forests in utility areas like STPs
- Miyawaki - Dense, native forests that grow in 2–3 years

✅ Eco-Incentives:
Reward eco-friendly buildings with tax rebates and development grants
✅ Green Financing:
Cities should adopt green budgeting, linking funds to environmental goals

Conclusion: India's urban development must balance growth with ecology. Urban biodiversity, citizen engagement, and strong judicial and policy action are key to building sustainable, breathable, and resilient cities.

BRS Conventions – COPs 2025

Context: India took part in the Conference of the Parties (COPs) to the Basel, Rotterdam, and Stockholm (BRS) Conventions held in Geneva.

Theme: "Make visible the invisible: Sound management of chemicals and wastes"

What Are the BRS Conventions?

These are three key global treaties that aim to protect human health and the environment from hazardous chemicals and waste throughout their lifecycle — from production to disposal.

- India is a party to all three conventions.
- Since 2010, their COPs have been held jointly to strengthen cooperation.

1. Basel Convention (1989)
Aim: To control and reduce the movement of hazardous wastes between countries, especially from developed to developing nations.

- Adopted: 1989 | Enforced: 1992
- Focus: Safe disposal of hazardous and electronic waste

2. Rotterdam Convention (1998)
Aim: To ensure informed consent before exporting or importing hazardous chemicals and pesticides in international trade.

- Adopted: 1998 | Enforced: 2004
- Focus: Shared responsibility in chemical trade

3. Stockholm Convention (2001)
Aim: To eliminate or limit the use of Persistent Organic Pollutants (POPs)—toxic chemicals that remain in the environment and harm health.

- Adopted: 2001 | Enforced: 2004
- POP Examples: DDT, aldrin, heptachlor, PCBs, dioxins, furans

Why It Matters: These conventions ensure safe handling of chemicals, protect ecosystems, and promote environmental justice, especially for developing countries vulnerable to waste dumping and toxic exposure.

GM Alfalfa – India Plans Import Restrictions

Context: India is considering restrictions on the import of genetically modified (GM) alfalfa seeds, amid U.S. pressure to lower trade barriers.

What is Alfalfa?

- Also known as Lucerne
- A highly nutritious forage crop used for livestock feed
- Rich in protein, calcium, and vitamins (A & D)

Environmental Benefits

✅ Nitrogen Fixation:

- Forms symbiosis with Rhizobium meliloti bacteria
- Fixes atmospheric nitrogen in root nodules
- Improves soil fertility naturally

✅ Sustainability Role:

- Acts as green manure, enhancing soil health and microbial life
- Reduces need for chemical fertilizers
- Aids in carbon sequestration and climate-resilient farming

Why the Concern?

Genetically modified (GM) alfalfa is under scrutiny for possible environmental and biosafety risks.

- India's move to regulate imports is seen as a precautionary measure to safeguard soil biodiversity, indigenous agriculture, and ecological sustainability.

India's Climate Finance Taxonomy – Guiding Green Investments

Context: The Finance Ministry has released a draft framework for India's Climate Finance Taxonomy to channel funds into sustainable sectors.

What is a Climate Finance Taxonomy?

It is a classification system that defines which economic activities qualify as climate-friendly investments.

- Helps investors and banks support green projects and avoid greenwashing.

India's Climate Taxonomy – Key Highlights

Part of a global trend (EU, UK, Singapore, Canada)

Aims:

- Accelerate Net Zero by 2070
- Promote climate-resilient infrastructure
- Support Viksit Bharat 2047 vision

Two Main Categories:

1. Climate-Supportive Activities
   - Cut or avoid greenhouse gas emissions
   - Enable climate adaptation
   - Fund R&D in clean technologies
2. Transition-Supportive Activities
   - Focus on energy efficiency
   - Lower emission intensity in hard-to-abate sectors

Key Sectors Covered:

Category	Examples
Hard-to-abate sectors	Iron, Steel, Cement
Mitigation + Adaptation sectors	Power, Transport (Mobility), Buildings
Adaptation & Resilience sectors	Agriculture, Food, Water Security

India's First Carbon Capture & Utilisation (CCU) Testbeds Launched

Context: On National Technology Day (11 May 2025), the Department of Science and Technology (DST) launched India's first CCU testbeds, focused on the cement industry, a high CO_2-emitting sector.

Key Highlights

- Sector Targeted: Cement (a major "hard-to-abate" sector)
- Administered by: Centre for Energy and Sustainable Technology (CEST), under DST

Partnership Model:

- Public-Private Partnership (PPP): DST + Industry + Academia
- Aims to bridge R&D with real-world implementation

Goals of the CCU Cement Cluster

- Create low-cost green cement using local technologies
- Develop commercial CO_2 capture + utilisation units
- Enable scaling up for wider industry adoption

Innovative Technologies Used

- Oxygen-Enhanced Calcination: Turns CO_2 into concrete blocks and olefins
- Carbon-Negative Mineralization: CO_2 gets locked into solid rocks
- Vacuum Swing Adsorption (VSA): Captures CO_2 from cement kiln gases for reuse

Significance

- Supports Net Zero 2070 Goals
- Decarbonises Cement Sector (responsible for ~8% of global CO_2)
- Boosts Indigenous Innovation
- Provides replicable CCU models for steel, power, oil & gas sectors

Conclusion -

India's CCU testbeds mark a milestone in climate innovation and industrial sustainability. By turning CO_2 from waste into resource, the initiative supports India's Net Zero ambitions and paves the way for green industrial growth.

CCU vs CCS: Know the Difference

Aspect	CCU (Utilisation)	CCS (Storage)
Definition	CO_2 converted into usable products	CO_2 stored underground
Output	Cement, fuels, urea, etc.	No products, CO_2 stored permanently
Economic Impact	Revenue-generating	Cost-intensive
Use Cases	Cement, fuels, beverages	Power plants, oil fields
Storage Need	No geological requirement	Requires deep geological sites
Environmental Impact	Emission reduction + resource value	Permanent carbon lock-in
Challenges	Market for CO_2 products still growing	Risk of leakage, high costs

State of the World's Animal Health Report 2025

Context: The World Organisation for Animal Health (WOAH) warns that Antimicrobial Resistance (AMR) and zoonotic diseases pose serious threats to global food security, public health, and economic stability by 2050 if urgent action is not taken.

About WOAH (World Organisation for Animal Health)

- Established: 1924 (as OIE); renamed WOAH in 2003
- Members: 183 countries, including India
- Role: Global authority on animal health, surveillance, disease control, and transparency
- Goal: Improve animal health for human safety, sustainable agriculture, and economic resilience

About the Report

- Released by: WOAH
- Type: Annual global assessment (1st edition in 2025)
- Purpose: Offers data-driven insights to guide national & global animal health policies

Key Focus Areas:

- Spread of animal diseases to new regions
- Zoonotic disease risks (animal to human transmission)
- Vaccine access & distribution challenges
- Antimicrobial Resistance (AMR) trends
- Global efforts in disease eradication & control

What Are Zoonotic Diseases?

- Definition: Diseases that spread from animals to humans, caused by viruses, bacteria, or parasites
- Example: Rabies, Bird flu, Nipah, COVID-19, Brucellosis
- Fact: 47% of all animal diseases reported to WOAH are zoonotic

Rising Threat Drivers:

- 🌡️ Climate change → alters ecosystems & spreads pathogens
- 🌍 Global trade in livestock & animal products
- 🏘️ Expanding human-animal-wildlife interface
- 🏥 Weak veterinary infrastructure and low vaccine access

Antimicrobial Resistance (AMR): A Global Crisis

- Definition: Pathogens evolve to resist antibiotics, making treatments ineffective
- Drivers:
  - Overuse/misuse in animals and humans
  - Lack of regulation and awareness
- Impact:
  - Threatens effective treatment of infections
  - Undermines food systems, animal productivity, and public health
- WOAH's Warning: AMR is among the gravest global health threats

Significance of the Report

- Provides evidence-based data for policy decisions
- Encourages coordinated global action on animal and zoonotic health
- Supports One Health Approach — linking animal, human, and environmental health

Conclusion - The report emphasizes the urgent need for:

- Stronger veterinary systems
- Responsible use of antibiotics
- Global collaboration to tackle zoonotic threats and AMR

Sustainable animal health is essential for ensuring future food, health, and economic security.

Hoyle–Narlikar Theory of Gravity

Context: Eminent Indian astrophysicist Dr. Jayant Narlikar passed away at the age of 87. He is best known for co-developing the Hoyle–Narlikar Theory of Gravity.

About Jayant Narlikar

- Co-founder of the Hoyle–Narlikar Theory with British astrophysicist Fred Hoyle (1964).
- Founded Inter-University Centre for Astronomy and Astrophysics (IUCAA) in Pune.
- Noted science communicator and writer.
  - Notable Works:
    - Dhoomaketu (The Comet) – science fiction story
    - Chaar Nagarantale Maze Vishwa – autobiography, Sahitya Akademi Award winner

Hoyle–Narlikar Theory of Gravity – Key Concepts

- Alternative to General Relativity
  - Competes with Einstein's Theory of General Relativity (GR).
  - Incorporates Mach's Principle:
  - The inertia of a body is influenced by the presence of all other matter in the universe.

- Main Features
  - Steady-State Universe - Universe has no beginning or end; it expands but maintains constant density.
  - Continuous Matter Creation - New hydrogen atoms created continuously via a Creation Field (C-field) to maintain constant density.
  - Creation Field (C-field) - A negative-energy field that allows spontaneous matter creation.
  - Variable Gravitational Constant (G) - G is not fixed; it changes with the average matter density of the universe (unlike Einstein's constant G).

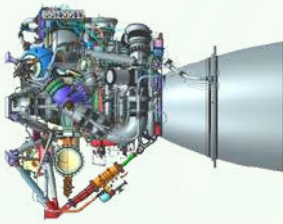
- Applications
  - Black Hole & White Hole Formation: Explains formation using "zero-mass surfaces" in spacetime.
  - Anomalous Redshifts: Interprets odd redshift patterns of quasars/galaxies using local variations in gravitational mass distribution.
  - Dark Energy Models: Some researchers explore this theory to model dark energy and cosmic acceleration.
- Limitations
  - Cosmic Microwave Background Radiation (CMB) discovery in 1965 strongly supported the Big Bang Theory, reducing the credibility of the Hoyle-Narlikar model.
- Not widely accepted in mainstream cosmology today.

Mach's Principle (in simple words):
An object's inertia (resistance to motion) comes from its gravitational interaction with the mass of the entire universe.

Conclusion
- The Hoyle-Narlikar theory was a revolutionary alternative that challenged mainstream Big Bang cosmology.
- Though less accepted today, it remains a significant milestone in theoretical physics and showcases India's global contribution to cosmology.

Semi-Cryogenic Engine

Context: ISRO successfully conducted a short-duration hot test of its semi-cryogenic engine (SE2000) at IPRC, Mahendragiri, achieving 60% rated power. This is part of India's push for indigenous heavy-lift launch vehicle technology.



What is a Semi-Cryogenic Engine?
A semi-cryogenic engine uses:
- Fuel: Refined Kerosene (RP-1) – storable at room temperature
- Oxidizer: Liquid Oxygen (LOX) – stored at -183°C

Key Difference:
- Unlike cryogenic engines (which use Liquid Hydrogen + LOX), semi-cryogenic engines are simpler, more efficient, and cost-effective.

ISRO's SE2000 Engine – Key Features

- Thrust - 2000 kN (very high – suitable for heavy-lift launches)
- Cycle - Oxidizer-rich staged combustion – allows high efficiency and high chamber pressure
- Chamber Pressure - ~180 bar (very efficient combustion)
- Use-case Designed for first stage of launch vehicles like LVM3 and future NGLV (Next Gen Launch Vehicle)

Power Head Test Article (PHTA)

- A precursor test article for validating key subsystems like:
  - Gas generator, turbo pumps, pre-burner, control systems
- First hot test in 2024 had failed; the May 2025 test succeeded.

Advantages of Semi-Cryogenic Engine

- High Thrust-to-Weight Ratio - Dense kerosene means smaller tanks & higher lift-off capability
- Cost-Effective - Kerosene is cheaper than Liquid Hydrogen; reduces mission costs
- Simpler Logistics - Kerosene is stored at room temp, unlike cryogenic hydrogen at -253°C
- Better Payload Capacity - Lifts 5 tonnes to GTO (vs. 4 tonnes with earlier engines)
- Reusable Core Potential - Supports future reusable rockets
- Cleaner Combustion - LOX + RP-1 gives less toxic emissions than hypergolic fuels
- Indigenous Capability - Boosts Atmanirbhar Bharat in critical propulsion tech

Strategic Significance

- Supports Gaganyaan (crewed mission) with high thrust requirements
- Reduces dependence on foreign heavy-lift engine tech
- Enhances India's space competitiveness
- Lays foundation for more frequent, low-cost launches
- Improves standing in global commercial space markets

Cryogenic vs Semi-Cryogenic Engine – Key Differences

Feature	Cryogenic Engine	Semi-Cryogenic Engine
Fuel	Liquid Hydrogen (LH_2)	Refined Kerosene (RP-1)
Oxidizer	LOX	LOX
Temp. Requirement	LH_2 at -253°C	Kerosene at room temp; LOX at -183°C
Efficiency	Very high	Slightly lower, but higher than solid/liquid fuel
Complexity	Very high	Moderate
Use	Upper stage (e.g., LVM3)	Core/booster stage (e.g., NGLV)

Genome-Edited Seeds

Context: The Union Agriculture Minister announced the release of two genome-edited rice varieties developed by ICAR institutes using CRISPR and other advanced tools.

What Are Genome-Edited Seeds?

- Created using precise gene-editing tools like CRISPR-Cas9 or SDN1.
- No foreign genes are inserted (unlike GMOs).
- Modifies a plant's own DNA to improve specific traits.

Difference from GMOs:

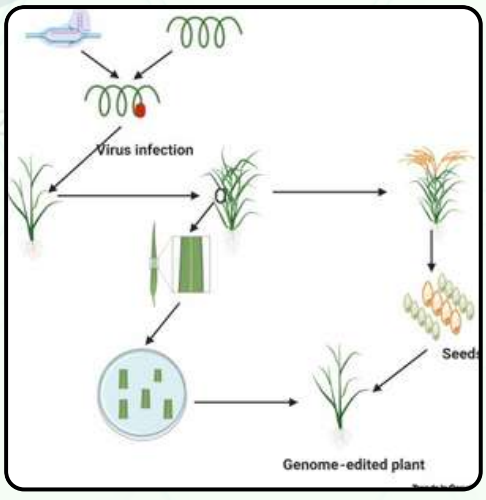
- Genome-edited plants use precision edits within the species' genome, while GMOs involve foreign gene insertion.

Benefits of Genome-Edited Rice Varieties

- Higher Yields -Up to 30% more production per hectare
- Early Maturity - Ready for harvest 15–20 days earlier
- Water Efficiency - Uses less water, saving 7500 million m^3 of irrigation water
- Lower Emissions - Reduces methane emissions by 20% (from flooded fields)
- Climate Resilience - Tolerates drought, salinity, and heat

Two Genome-Edited Varieties Launched

1. DRR Dhan 100 (Kamala)
   - Developed by: ICAR-IIRR, Hyderabad
   - Parent Variety: Samba Mahsuri (BPT 5204)
   - Technology Used: CRISPR-Cas9
   - Target Gene: CKX2 (Gn1a – cytokinin oxidase)
   - Features:
     - Higher yield
     - Drought tolerance
     - Early maturity
2. Pusa DST Rice 1
   - Developed by: ICAR-IARI, New Delhi
   - Based on: MTU 1010 variety
   - Technology Used: SDN1 (Site-Directed Nuclease 1)
   - Target Gene: DST (Drought and Salt Tolerance)
   - Features:
     - Drought, salinity, and alkaline soil resistance



Why Genome-Edited Seeds Are Important

- Can increase rice output by 10 million tonnes without needing more land.
- Could free up 5 million hectares of land for other crops.
- Help combat climate change, improve water use, and enhance food security.

- Legal Exemption - Genome-edited crops using SDN1 and SDN2 techniques are not classified as GMOs
- Not Regulated by GEAC - Exempt from Rules 7–11 of EPA, 1989
- Implication - Faster approval and commercialization in India

Gene Therapy for Haemophilia A

Context: BRIC-inStem, Bengaluru, in collaboration with CMC Vellore, has conducted India's first human gene therapy trial for Haemophilia A.

What is Haemophilia A?

- A genetic bleeding disorder caused by a deficiency of Factor VIII, a clotting protein.
- Cause: Mutation in the F8 gene on the X chromosome.
- Inheritance:
  - X-linked recessive
  - Affects males predominantly; females are typically carriers.
- Symptoms:
  - Excessive bleeding
  - Easy bruising
  - Joint pain from internal bleeding

Traditional Treatment:

- Frequent IV infusions of synthetic or donated Factor VIII.
- No permanent cure through conventional treatment.

What is Gene Therapy for Haemophilia A?

- A one-time therapy that replaces the faulty F8 gene with a functional version.
- Method:
  - A modified adenovirus vector delivers the correct F8 gene to liver cells.
  - The liver starts producing Factor VIII internally.
- Goal: Permanent correction of the bleeding disorder.

Global Context:

- The world's first approved gene therapy for Haemophilia A, Roctavian, got FDA approval in 2023 (USA).
- India is now taking steps to make such advanced therapies locally available and affordable.

Significance of India's Trial:

- First-in-human trial marks a major milestone in Indian medical research.
- Reduces dependency on expensive lifelong treatments.
- Supports 'Atmanirbhar Bharat' in advanced healthcare innovation.

Lafora Disease

Context: Lafora disease has gained attention recently due to ongoing research and awareness campaigns about this rare and fatal genetic brain disorder.

What is Lafora Disease?

- A rare, inherited, progressive neurological disorder.
- Belongs to a group of disorders called Progressive Myoclonic Epilepsies (PMEs).
- Onset: Typically begins between 10–18 years of age.
- Rapidly worsens over time, leading to severe epilepsy, loss of motor functions, and cognitive decline.

Cause:

- Caused by mutations in either of the two genes:
  - EPM2A
  - NHLRC1 (also called EPM2B)
- These genes are involved in glycogen metabolism.
- Mutation leads to accumulation of abnormal glycogen-like structures called Lafora bodies in brain cells, which disrupt normal function.

Key Symptoms:

- Myoclonic seizures (sudden jerks)
- Tonic-clonic seizures
- Muscle stiffness
- Cognitive decline
- Loss of coordination (ataxia)

Prevalence in India:

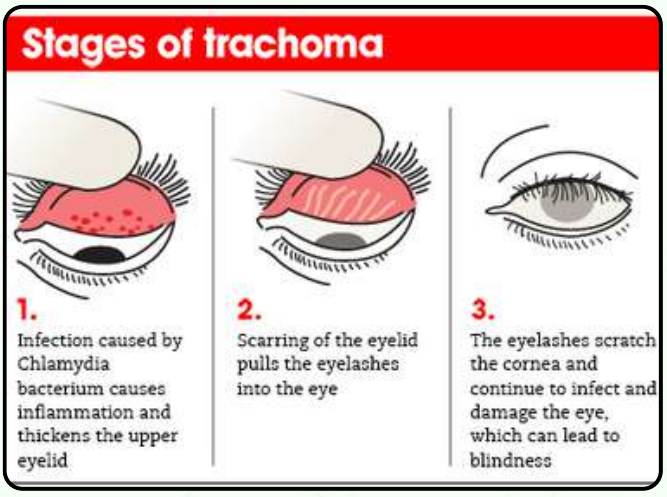
- More common in regions with consanguineous marriages (marriage between close relatives), due to autosomal recessive inheritance.

Treatment:

- No known cure yet.
- Current treatments focus on managing seizures and supportive care.
- Research is ongoing into potential gene therapies and enzyme-based treatments.

Trachoma Elimination in India

Context: India was awarded the Certificate of Elimination of Trachoma as a Public Health Problem by the World Health Organization (WHO) at the 78th World Health Assembly in Geneva (2024).



What is Trachoma?

- A contagious eye disease caused by the bacterium Chlamydia trachomatis.
- It is the leading infectious cause of blindness globally.
- Irreversible blindness may occur if left untreated.

Mode of Transmission:

- Direct contact: via hands, clothes, bedding of infected individuals.
- Indirect transmission: through flies that come into contact with eye/nasal secretions.

Disease Progression:

1. Repeated infections → inflammation of the inner eyelid.
2. Eyelashes turn inward (trichiasis).
3. Lashes scratch the cornea → scarring and blindness.

India's Milestone:

- Declared Trachoma-free as a public health problem on October 8, 2023.
- Became the 3rd country in WHO South-East Asia Region to achieve this (after Maldives and Sri Lanka).
- Elimination defined as: <5% prevalence of active trachoma in children aged 1–9 years and a system in place to manage trichiasis.

Agentic AI

Context:
India is facing a shortage of professionals in Agentic AI as demand increases due to a shift towards autonomous AI systems across sectors.

What is Agentic AI?

Agentic AI refers to AI systems capable of independent decision-making, action, and learning in dynamic real-world environments.

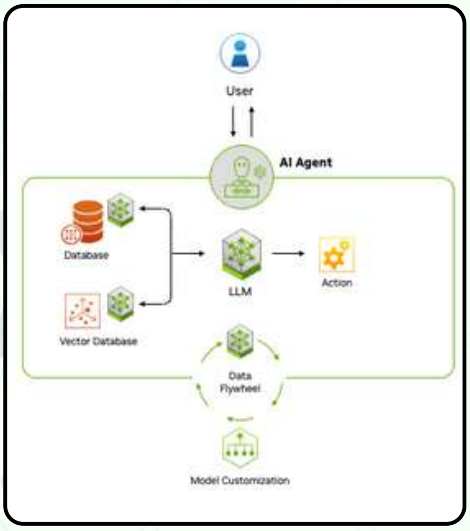
- Acts like an autonomous agent — can perceive, decide, act, and improve without constant human input.
- Enables a shift from Software as a Service (SaaS) to Service as a Software (SaaS 2.0) — AI not just as a tool, but as a service provider.

How It Works:

1. Data Ingestion: Collects data from diverse sources (apps, sensors, users).
2. Independent Analysis: Processes challenges, plans solutions, executes tasks.

4-Step Process of Agentic AI:

1. Perceive - Recognizes patterns, objects, environment.
2. Reason - Understands goals and generates strategies.
3. Act - Performs tasks or operations.
4. Learn - Improves continuously through feedback.



Applications:

- Autonomous Vehicles
- Smart Manufacturing
- Healthcare Diagnostics
- Finance & Retail Automation

Key Concepts:

Software as a Service (SaaS):

- Cloud-based apps accessed online.
- Example: Gmail, Google Docs, Dropbox.

Service as a Software:

- AI agents autonomously deliver services without manual operation.
- Examples:
  - Smart AI customer service bots.
  - AI legal assistants drafting documents.
  - AI medical agents diagnosing and prescribing.

2D Metals

Context: Chinese scientists have successfully created atomically thin 2D metals like bismuth and tin, opening new possibilities in quantum technologies, electronics, and batteries.

What are 2D Metals?

- 2D materials are extremely thin materials (just a few atoms thick) with unique properties.
- ⚛️ Example: Graphene (carbon-based 2D material).
- 2D metals: Atomically thin layers made of metals (like tin or bismuth).
  - Difficult to create because metals naturally form 3D structures.

How are They Made?

- Technique: "Sapphire–MoS_2 sandwich" under high pressure.
- Achieved thickness: ~6.3 angstroms (~2 atoms thick).

Key Properties:

- Quantum Confinement - Electrons move only in 2D, changing electrical & magnetic behavior.
- Nonlinear Hall Effect - Found in 2D bismuth; not seen in normal metals.
- Topological Insulators - In 2D form, tin & bismuth conduct only on edges (useful for quantum tech).

Potential Applications:

1. Quantum Computing
   - Edge Conduction: Supports stable quantum states for error-free computing.
   - Spintronics: 2D metals can form magnetic zones useful in memory tech.
2. Batteries
   - Better Electrodes: High conductivity and thinness improve efficiency.
   - Lightweight Design: Atom-thin layers reduce battery weight.
3. Sensors
   - Ultra-Sensitive: Detect small chemical/biological changes.
   - Field-Tunable: Can be controlled using external fields (adaptive sensors).

EOS-09 (Earth Observation Satellite-09)

Context: ISRO's PSLV-C61 mission failed to place EOS-09 into orbit due to a third-stage malfunction, raising concerns about launch reliability.

What Are Earth Observation Satellites?

- Earth Observation (EO) Satellites observe Earth's surface from space.
- Purpose:
- ✓ Environmental monitoring
- ✓ Agriculture & forestry
- ✓ Weather forecasting
- ✓ Urban planning
- ✓ Military surveillance (spy satellites)

About EOS-09:

- Old Name - RISAT-1B
- Type - Radar Imaging Satellite
- Tech - C-band Synthetic Aperture Radar (SAR) – works in all weather and day/night conditions
- Launch Site - Satish Dhawan Space Centre, Sriharikota
- Weight - ~1,710 kg
- Launch Vehicle - PSLV-C61
- Outcome - Failed to reach orbit due to third-stage malfunction

Applications:

- 🌾 Agriculture: Crop health, planting patterns
- 🌳 Forestry & Plantation Monitoring
- 💧 Soil Moisture & Hydrology
- 🌊 Flood Mapping & Disaster Response
- 🏙️ Urban Planning & Development
- 🛡️ National Security (surveillance)

Ban on Antibiotics in Animals to Tackle AMR

Context: FSSAI has banned certain antibiotics in meat, poultry, eggs, milk, and aquaculture products to fight the rising threat of antimicrobial resistance (AMR).

Why the Ban?

- Antibiotics were being misused as growth promoters in animals.
- This led to the development of antibiotic resistance genes (ARGs), which can pass to humans through food.

India's Concern:

- India is the 4th largest user of antibiotics in food animals.
- A 2019–22 survey found high resistance in poultry and aquaculture—91.3% of Staphylococcus aureus was resistant to penicillin.

What is AMR?

- AMR happens when microbes like bacteria and fungi become resistant to medicines.
- Common drug-resistant pathogens:
  - MRSA (Methicillin-resistant Staphylococcus aureus)
  - VRE (Vancomycin-resistant Enterococci)
  - MDR-TB (Multidrug-resistant tuberculosis)

Impact:

- Global threat: 700,000 deaths annually (WHO); may reach 10 million/year by 2050.
- India's burden: Over 50% resistance seen in poultry, pigs, and fish.

WHO Recognizes Countries for Eliminating Trans Fats

Context: At the 78th World Health Assembly, WHO honored Austria, Norway, Oman, and Singapore for eliminating industrially produced trans fats from their food supply.

What are Trans Fats?

- A type of unsaturated fatty acid, harmful to heart health.

Sources:

- Natural: Found in meat and dairy from animals like cows, goats, sheep.
- Industrial: Found in vanaspati ghee, margarine, baked and fried foods.

Health Impact:

- Both natural and industrial trans fats increase risk of heart disease.

India's Regulation:

- Since January 2022, India limits industrial trans fats to 2% in oils and fats.

WHO Advice:

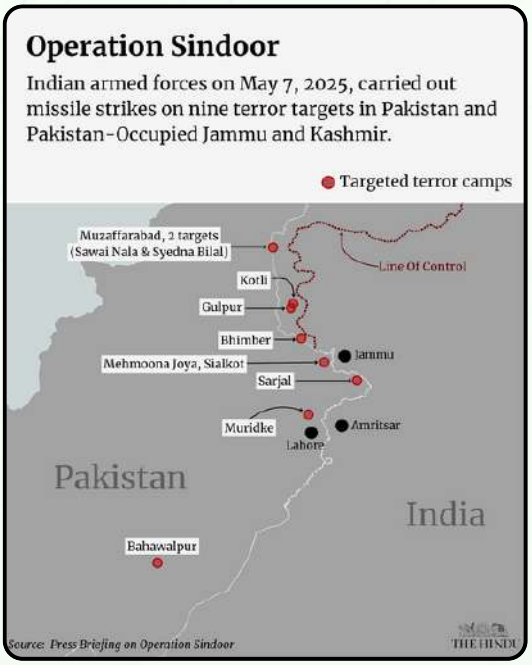
- Limit trans fat intake to <1% of total energy, i.e., less than 2.2g/day for a standard 2,000 calorie diet.

Operation Sindoor: India's Decisive Strike Post-Pahalgam Attack

Context: After the April 22 Pahalgam terror attack that killed 25 Indian tourists and one Nepali citizen, India launched Operation Sindoor, a deep military strike into Pakistan-occupied territory.

Impact on India:

- Strengthened Deterrence:
- Reinforced India's military credibility; showcased advanced weaponry like BrahMos, SCALP, drones.
- Political Unity & Public Support:
- Operation was seen as measured and responsible, gaining bipartisan backing.
- Boosted Diplomatic Standing:
- India's action was viewed as justified self-defence under UN Charter Article 51.
- Test of Internal Security:
- Potential for communal tensions post-attack required careful management.



Impact on Pakistan:

- Deepest Cross-Border Strike Since 1971:
- India penetrated up to 150 km, surpassing the 2016 Uri and 2019 Balakot strikes.
- Broke Pakistan's belief that India would avoid deep military responses.
- Terror Camps Destroyed:
- Precision strikes on key terror training camps (e.g., Sawai Nala, Markaz Taiba) based on detailed human & technical intel.
- Psychological Blow & Political Confusion:
- Pakistani leadership gave mixed reactions—PM promised retaliation, while Defence Ministry appeared confused.
- International Isolation:
- UNSC rejected Pakistan's attempt to censure India; global powers tacitly supported India's right to self-defence.
- Public Discontent & Military Scrutiny:
- Economic crisis, Imran Khan's jailing, and internal unrest have weakened faith in Pakistan's army-led governance.
- Civilian Casualties Claim:
- Pakistan claimed civilian deaths; India maintained only terror infrastructure was targeted.
- Indus Waters Treaty Suspended:
- India's suspension of the treaty added economic and emotional pressure on Pakistan.

Challenges Ahead:

1. Possible Pakistani Retaliation:
2. Future attacks (military or terror-based) remain a risk.
3. Sustaining Deterrence:
4. One-time strikes aren't enough—India needs long-term military readiness.
5. Diplomatic Balance:
6. Some nations like China and Turkey didn't support India; global support needs consolidation.
7. Preventing Communal Polarization:
8. The attack aimed to incite Hindu-Muslim tensions—social harmony must be safeguarded.
9. Indus Waters Treaty Risks:
10. Suspension, though strategic, could trigger backlash or international criticism.
11. Need for Better Intelligence & Response:
12. Requires stronger predictive intel, real-time monitoring, and rapid action teams.
13. Winning Trust in Kashmir:
14. True integration demands development, justice, and respect for rights—not just military action.

Way Forward:

- Adopt a Clear Counter-Terror Doctrine:
- Go beyond reactive strikes; build a long-term, consistent policy.
- Enhance Intelligence (HUMINT + TECHINT):
- Integrate ground-level intel with tech surveillance for better pre-emption.
- Strengthen Military Capabilities:
- Invest in precision weapons, cyberwarfare, and drone tech.
- Diplomatic Engagement:
- Build global consensus and isolate Pakistan diplomatically.
- Preserve Internal Unity:
- Avoid religious polarization; promote community trust, especially in J&K.
- Reform Kashmir Policy:
- Focus on people-centric governance—development, rule of law, and dignity.
- Use Indus Waters Diplomacy Strategically:
- Leverage the treaty as a pressure tool, but avoid overuse to retain international legitimacy.

Conclusion:
Operation Sindoor marks a new era in India's counter-terror strategy—precise, assertive, and diplomatically sound. To maintain this momentum, India must focus on military readiness, intelligence depth, internal unity, and international diplomacy.

National Security Advisory Board (NSAB) Reorganized

Context: The government has revamped the NSAB after the Pahalgam terror attack, reflecting a stronger focus on strategic security.

Key Updates:
- New Chairman: Alok Joshi, former R&AW Chief, appointed as the new head of the board.
- New Members: Seven experts from diverse fields have been inducted.

About NSAB:
- Established: December 1998
- Nature: Advisory body consisting of eminent persons outside the government.
- Fields Represented: Industry, media, civil society, etc.

Functions of NSAB:
- Strategic Analysis:
- Offers long-term perspectives on national security issues.
- Advisory Role:
- Provides recommendations to the National Security Council (NSC) on matters referred to it.

Air Defence Systems: Strategic Backbone of National Security

Context: India's recent strike neutralizing a Pakistani air defence system in Lahore has underlined the growing importance of modern air defence technologies.

What are Air Defence Systems?

Air Defence Systems are military setups that detect, track, and destroy incoming aerial threats like aircraft, drones, and missiles.

🔹 Types of Air Defence Systems:

- Surface-to-Air Missiles (SAMs):
  - Ground-based missiles that target aerial threats at various altitudes and ranges.
- Anti-Aircraft Artillery (AAA):
  - Short-range guns, useful against low-flying aircraft and drones.
- Electronic Warfare (EW) Systems:
  - Use electromagnetic signals to jam or deceive enemy radars and communications.

IN India's Key Air Defence Systems:

System	Type	Origin	Range	Targets
Akash	Short-range SAM	India	Up to 25 km	Aircraft, drones, cruise missiles
S-400	Long-range SAM	Russia	Up to 400 km	Stealth aircraft, cruise/ballistic missiles
Spyder	Short-range SAM	Israel	Up to 15 km	Aircraft, drones, guided bombs
Igla-S	Man-portable SAM (MANPADS)	Russia	Up to 6 km	Low-flying aircraft, helicopters, UAVs

Field Marshal: The Highest Military Rank

Context: Pakistan has promoted its Army Chief, General Asim Munir, to the rank of Field Marshal — the highest rank in the army hierarchy.

What is a Field Marshal?

- **A Field Marshal (FM) is a 5-star rank and the highest military rank, above that of a General.**
- **It is mostly honorary and ceremonial, not involving active command duties.**

Field Marshals in India:

India has had two Field Marshals so far:

1. **Sam Manekshaw – First FM, appointed in 1973**
2. **K.M. Cariappa – Appointed in 1986**

Also, in the Indian Air Force:

- **Arjan Singh was awarded the title Marshal of the Air Force in 2002 (only one to date).**

Equivalent Ranks Across Forces:

Rank Level	Indian Army	Indian Navy	Indian Air Force
1	Field Marshal	Admiral of the Fleet	Marshal of the Air Force
2	General	Admiral	Air Chief Marshal
3	Lt. General	Vice Admiral	Air Marshal
4	Major General	Rear Admiral	Air Vice Marshal
5	Brigadier	Commodore	Air Commodore
6	Colonel	Captain	Group Captain

Ramman Festival – A Living Tradition of Uttarakhand

Context: The Ramman Festival was recently celebrated in Salur-Dungra village of Jyotirmath, Uttarakhand.

What is the Ramman Festival?

- Ramman is a unique religious and cultural festival celebrated every year in Saloor-Dungra village in the Chamoli district of Uttarakhand.
- It is dedicated to the Bhumiyal Devta, the local guardian deity.

UNESCO Recognition:

- In 2009, Ramman was included in the UNESCO's Representative List of the Intangible Cultural Heritage of Humanity.

Key Features of the Festival:

- Masked dances that portray stories from Hindu epics like the Ramayana.
- A mix of music, storytelling, and ritual theatre—performed by local villagers.
- Entirely oral tradition—skills like singing, drumming, and choreography are passed down through families over generations.

100 Years of Art Deco Style

Context: The world celebrates 100 years of the iconic Art Deco design style, first introduced in 1925.

What is Art Deco?

- A modernist design movement known for:
  - Bold geometric patterns
  - Streamlined forms
  - Vibrant colors
  - Use of new materials like glass, concrete, and chrome

Art Deco in India:

- First Indian City to adopt Art Deco: Bombay (Mumbai)
  - Indian-owned banks and institutions were early adopters.
- In Madras (Chennai):
  - Introduced in the 1930s by architect L.M. Chitale.

70 Years of the Bandung Conference (1955–2025)

Context: 2025 marks the 70th anniversary of the historic Bandung Conference, the first major summit between Asian and African nations.

About the Bandung Conference:

- Held in: Bandung, West Java, Indonesia, in 1955
- Participants: 29 newly independent Asian and African countries
- Organised by:
  - Indonesia, India, Burma (Myanmar)
  - Ceylon (Sri Lanka), Pakistan

Core Principles:

- Political self-determination
- Sovereignty and equality
- Non-aggression and non-interference in internal affairs

Legacy:

- Laid the foundation for South-South cooperation
- Acted as a precursor to the Non-Aligned Movement (NAM)

AI Kiran Initiative

Context: The AI Kiran initiative was recently launched to promote women leadership in Artificial Intelligence and Machine Learning.

About AI Kiran:

Purpose:

- To recognise, support, and grow women leaders in AI and ML across key sectors like healthcare, education, sustainability, and enterprise tech.

Led by:

- Office of the Principal Scientific Adviser (PSA) to the Government of India
- Verix
- INK Women Foundation

Participants:

- Over 250 leading women in AI will participate in the initiative.

Significance:

- Encourages diverse leadership, reduces algorithmic bias, and promotes inclusive AI systems.

Official Secrets Act, 1923 (OSA)

Context: YouTuber Jyoti Rani from Haryana was booked under Sections 3 & 5 of the OSA and Section 152 of the Bharatiya Nyaya Sanhita (BNS) for allegedly spying for Pakistan.

About the Official Secrets Act (OSA):
Origin:

- First enacted as Indian Official Secrets Act, 1889 by the British to suppress dissent.
- Current Version (1923):
- A comprehensive law that criminalizes:
  - Sharing official secrets like codes, passwords, plans, etc.
  - Unauthorized collection, communication, or publication of secret information.
- Purpose:
- To protect national security by preventing espionage and leakage of sensitive government information.

About Bharatiya Nyaya Sanhita, 2023:

- Replaces the Indian Penal Code (IPC) as part of criminal law reforms.
- Section 152: Deals with acts endangering the sovereignty, unity, and integrity of India.

Algeria Joins New Development Bank (NDB)

Context: Algeria has recently been admitted as a new member of the New Development Bank (NDB

About NDB:

- Established: 2015, during the 6th BRICS Summit in Fortaleza, Brazil.
- Headquarters: Shanghai, China
- Parent Organisation: BRICS (Brazil, Russia, India, China, South Africa)

Key Features:
Purpose:

- To mobilise resources for infrastructure and sustainable development in BRICS and other emerging markets & developing countries (EMDCs).
- Voting System:
  - Equal voting rights to all members
  - No veto power for any country
- Current Members (9):
  - BRICS: Brazil, Russia, India, China, South Africa
  - Others: Bangladesh, UAE, Egypt, Algeria
- UN Status:
- Holds Observer status at the United Nations General Assembly (UNGA)
- Leadership Rotation:
  - Presidency and Vice-Presidency rotate among the founding BRICS members

Indo-Pacific Logistics Network (IPLN)

Context: The Quad partners (India, USA, Australia, Japan) recently met in Honolulu, Hawaii for a simulation tabletop exercise to operationalise the Quad-IPLN Exercise.

What is IPLN?

- A Quad-led initiative to improve logistical coordination among the four member countries.
- Focuses on civilian Humanitarian Assistance and Disaster Relief (HADR) operations in the Indo-Pacific region.

Participating Countries:

- India
- United States
- Japan
- Australia

Key Objectives:

- Enhance logistics support among Quad nations
- Strengthen response to natural disasters and humanitarian crises
- Improve interoperability in the Indo-Pacific

Complementary Initiative:

- IPLN supports the Indo-Pacific Partnership for Maritime Domain Awareness (IPMDA)
- Focus: Real-time maritime surveillance and coordinated responses to regional maritime challenges

UN 1267 Sanctions Committee

Context: An Indian technical team is in New York engaging with the Monitoring Team of the 1267 Committee to seek a ban on The Resistance Front (TRF), which India accuses of the April 22 Pahalgam terror attack.

What is the 1267 Sanctions Committee?

- Official Name: Daesh and Al Qaeda Sanctions Committee
- stablished: 1999 under UN Security Council Resolution 1267
- Purpose: Imposes sanctions on individuals/groups associated with Al-Qaeda, ISIS (Daesh), and their affiliates.

Composition:

- Made up of all 15 members of the UN Security Council (UNSC)
- Decisions are made by consensus

Key Sanctions Under the Committee:

1. Asset Freezes – Financial assets of listed individuals/groups are blocked
2. Travel Bans – Movement across international borders is restricted
3. Arms Embargoes – Prohibits supply of weapons and military support

The 1267 List:

- A UN-verified global list of terrorists and terror outfits
- Listing leads to international recognition and enforcement of sanctions

Current Leadership (till Dec 2024):

- Chair: Vanessa Frazier (Malta)
- Vice-Chairs: Russian Federation and Sierra Leone

Group of Friends of Traditional Medicine (GFTM)

Context: The 6th meeting of the GFTM was held at the Permanent Mission of India to the UN in Geneva.

What is GFTM?

- Initiated by India in May 2023
- It is an informal group of countries
- Works under the WHO framework

Objective:

- To promote the integration of traditional medicine into national healthcare systems
- To ensure safe, effective, and standardized practices of traditional medicine globally

What is Traditional Medicine?

- Refers to indigenous healthcare knowledge, skills, and practices
- Often passed down through generations
- Used for prevention, diagnosis, and treatment of physical and mental illnesses

Examples of Traditional Medicine:

- Ayurveda (India)
- Acupuncture (China)
- Herbal Medicine
- Unani Medicine
- Spiritual Healing

16th Asiatic Lion Census 2025

Context: Gujarat's Forest Department released the 2025 census, showing a significant rise in Asiatic lion numbers.

About Asiatic Lion:

- Scientific Name: Panthera leo persica
- Location: Found only in Gujarat, making it a region-exclusive big cat.
- IUCN Status: Vulnerable — due to limited numbers and high sensitivity to diseases and habitat threats.

Key Highlights:

- Population Growth: Asiatic lions increased by 32%, from 674 (2020) to 891 (2025). Adult females rose to 330 (↑ 27%), showing healthy reproduction.
- Lions Beyond Core Zones: For the first time, more lions live outside protected areas (like Gir National Park), indicating a natural range expansion.
- Territorial Spread: The lion range grew from 30,000 sq. km to 35,000 sq. km — a 16.67% increase.
- Conservation Success: Mityala Sanctuary doubled its lion count to 32, thanks to improved wildlife corridors.

Saola Genome Mapped: A Step to Save the 'Asian Unicorn'

Context: Scientists have successfully mapped the genome of the Saola, one of the world's rarest mammals.

About Saola:

- Scientific Name: Pseudoryx nghetinhensis
- First Identified: 1993
- Habitat: Dense, misty forests of the Annamite Mountains (on the Vietnam–Laos border)
- IUCN Status: Critically Endangered
- Estimated Population (2015): Just 50–300 individuals

Key Facts:

- Never seen alive by scientists in the wild
- Only 5 known sightings via camera traps
- Known mostly from skulls and skins

Why It Matters:

- Major Threats:
  - Indiscriminate trapping (snares set for other animals)
  - Habitat destruction from agriculture and deforestation
- Conservation Plan:
  - A captive breeding center is planned in Vietnam
  - Goal: Capture 12+ individuals for breeding and eventual reintroduction in protected zones

Mosura fentoni: 506-Million-Year-Old Three-Eyed Predator Discovered

Context: Scientists have unearthed a new species named Mosura fentoni, a three-eyed marine predator from 506 million years ago.

Key Highlights:

- Group: Belongs to Radiodonts — an extinct group of early arthropods, ancestors of insects, spiders, and crustaceans.
- Nickname: Called the "sea moth" due to its moth-like body shape and small size (about the size of a finger).
- Unique Features:
- ▸ Had 16 abdominal segments with gill-like structures for breathing
- ▸ Possessed a third eye in the middle of its head, likely used for underwater navigation
- ▸ Its features show evolutionary convergence with modern animals like horseshoe crabs and woodlice

Significance: This discovery helps scientists understand the evolution of arthropods and the diversity of early marine ecosystems during the Cambrian Period.

World's Longest Banana Infructescence Found in Nicobar Islands

Context: A banana species with the longest fruit bunch (infructescence) in the world has been recorded in the Andaman & Nicobar Islands.

Key Details:

- Species: Musa indandamanensis — a wild banana species found only in the islands
- Record Length: The fruit bunch measured 4.2 metres, the longest ever documented
- Location of Discovery: Campbell Bay, Nicobar Islands
- Conservation Status: Listed as Critically Endangered; saplings are being protected in botanical gardens
- Why It Matters: This species holds genetic value for breeding disease-resistant and high-yield banana varieties

Kumki Elephants to Help Tackle Human-Elephant Conflict

Context: Karnataka will provide Kumki elephants to Andhra Pradesh to manage increasing man-elephant conflicts near their border areas.

What Are Kumki Elephants?

- The word "Kumki" comes from Tamil, meaning "helper."
- These are trained captive Asian elephants used to control or guide wild elephants safely, especially during conflict situations.

About Asian Elephants:

- Population in India: 26,000–29,000
- IUCN Status: Endangered
- Gestation Period: 18–22 months
- Tusks: Only male elephants have tusks, except makhnas, who are tuskless males.

India to Host Global Space Exploration Summit 2025

Context: India will host the 12th edition of GLEX 2025 in New Delhi from 7th to 9th May 2025.

About GLEX 2025:

- It is a global summit focused on space exploration, innovation, and international collaboration.
- Theme: “Reaching New Worlds: A Space Exploration Renaissance”

Key Organisers:

- Host: ISRO
- Co-host: Astronautical Society of India (ASI)
- International Partner: International Astronautical Federation (IAF)
- Nodal Ministry: Ministry of Science and Technology

Objectives:

- Promote international cooperation on joint missions and space research
- Showcase innovations in AI, robotics, satellites, etc.
- Engage youth through technical and educational programs

India Launches First Publicly Funded Bio-foundry at ICGEB

Context: India inaugurated its first publicly funded Bio-foundry (DST-ICGEB Bio-foundry) at the International Centre for Genetic Engineering and Biotechnology (ICGEB) in New Delhi.

About ICGEB (International Centre for Genetic Engineering and Biotechnology):

- An intergovernmental life sciences research organization, founded in 1983.
- Nodal Ministry (India): Department of Biotechnology (DBT)
- Main Centres:
  - New Delhi, India – research & biotech applications
  - Trieste, Italy – headquarters
  - Cape Town, South Africa – R&D and partnerships
- Membership: 69 countries
- Works to promote biotech-driven sustainable development through research, training, and tech transfer.
- Functions within the UN Common System framework.

What is a Bio-foundry?

- A high-tech biomanufacturing facility that enables rapid testing and scaling of biological innovations.
- India's Bio-foundry will support startups and researchers in scaling up biotech solutions.
- Aligned with India's BioE3 policy (Bioeconomy, Environment, and Empowerment).

"Bird-Wing" Solar Flare and Earth-Directed CME

Context: A powerful solar flare, nicknamed the "Bird-Wing", was recently observed due to its wide, wing-like arcs of plasma.

Why It Matters:

- The flare triggered a Coronal Mass Ejection (CME) directed toward Earth.
- These events help scientists better understand solar-Earth interactions and improve space weather forecasting.

What Are Solar Flares?

- Sudden, intense bursts of electromagnetic radiation from the Sun.
- Caused by the reconnection of magnetic field lines.
- Impact: Can disrupt radio signals, satellite communications, and even power grids on Earth.

What is a Coronal Mass Ejection (CME)?

- A massive cloud of charged plasma ejected from the Sun.
- Slower than solar flares — takes 1–3 days to reach Earth.
- If Earth-directed, CMEs can lead to auroras and may interfere with satellites and communications.

Supercapacitor Breakthrough by Nagaland University

Context: Researchers at Nagaland University have developed an affordable and eco-friendly method to produce aminated graphene, a promising material for energy storage.

What are Supercapacitors?

- Devices used for quick energy storage and release.
- Known for high power density, fast charging, and long life.
- Used in electric vehicles, power backup systems, and portable electronics.

What's New?

- Aminated Graphene was created using a simple one-step process from reduced graphene oxide.
- Process works at room temperature and does not require rare-earth elements or complex machinery.

Significance:

- Offers a low-cost, sustainable alternative for building efficient supercapacitors.
- Can boost India's role in clean energy tech and green innovation.

INSV Kaundinya: Revival of Ancient Maritime Heritage

Context: Indian Navy has inducted INSV Kaundinya, a traditionally built stitched wooden ship, at Karwar Naval Base, Karnataka.

Historical Inspiration:

- Named after Kaundinya, an ancient Indian sailor who voyaged to Southeast Asia.
- Design inspired by a 5th-century ship depicted in the Ajanta caves.

Construction Method:

- Built using ancient stitching techniques, where wooden planks are stitched together using natural fiber — no nails or metal fasteners used.
- This technique was common in India's early maritime history.

Significance:

- Part of a commemoration project approved by the National Implementation Committee (chaired by Union Home Minister).
- Aims to celebrate and revive India's maritime traditions and shipbuilding heritage.

Security Operations in News

Operation Black Forest

- Aim: Achieve a Naxal-free India by 2026.
- Launched by: CRPF & State Police
- Duration: 21 days (Longest anti-Naxal operation)
- Location: Karreguttalu Hills (Chhattisgarh–Telangana border)
- Focus: Anti-Naxal action + community outreach & welfare delivery to weaken local Naxal support.

Operation AAHT (Action Against Human Trafficking)

- Led by: Railway Protection Force (RPF)
- Focus: Curb human trafficking via railways, especially targeting vulnerable children.
- Action Taken (2024–25):
  - Rescued: 929 victims (874 children)
  - Arrested: 274 traffickers
  - Supported by Anti-Human Trafficking Units (AHTUs) across railway zones.

Operation Hawk-2025

- Conducted by: CBI
- Objective: Crackdown on global cybercrime networks involved in online child sexual abuse.
- Trigger: Intel input received from U.S. agencies.

Operation Keller

- By: Indian Army
- Location: Shopian's Keller forests (J&K)
- Purpose: Counter-terrorism operation in South Kashmir.

Golden Dome: US's $175 Billion Missile Shield Project

Context: The Golden Dome is the United States' newly approved missile defense shield, aimed at countering threats from China and Russia.

Key Features:

- Inspired by Israel's Iron Dome.
- Will detect and neutralize missiles at all four stages of their flight.
- Uses a mix of ground-based systems and space-based interceptors.
- Involves thousands of small satellites in Earth's orbit for early detection and interception, especially against ICBMs (Intercontinental Ballistic Missiles).

Objective: To build a multi-layered, space-supported defense system for real-time protection against advanced missile threats.

Dr. M. R. Srinivasan: Architect of India's Civil Nuclear Programme

Context: Dr. M. R. Srinivasan, a key figure in India's nuclear journey, passed away on 20 May 2025 at the age of 95.

Career Highlights:

- Joined Department of Atomic Energy (DAE) in 1955 under Dr. Homi Bhabha.
- Contributed to India's first research reactor – Apsara (1956).
- Played a major role in setting up:
  - Tarapur Atomic Power Station
  - Madras Atomic Power Station
- Became Chairman of Atomic Energy Commission in 1987 and founding Chairman of NPCIL.
- Led India's civil nuclear expansion — added 18 nuclear units.
- Championed self-reliance by indigenizing Pressurised Heavy Water Reactors.

Key Advisory Roles:

- Advisor at IAEA (1990–92)
- Planning Commission Member (1996–98) – handled Energy & S&T
- Member, National Security Advisory Board (2002–04, 2006–08)

Institutional Roles:

- Founder Member, WANO
- Fellow of multiple Indian engineering and nuclear societies

Awards:

- Padma Shri (1984)
- Padma Bhushan (1990)
- Padma Vibhushan (2015)

Legacy: Pioneered India's civil nuclear power and ensured technological self-sufficiency in a critical sector.

Ahilyabai Holkar: The Benevolent Queen of Malwa

Context: India celebrated the 300th birth anniversary of Ahilyabai Holkar on 31st May 2025.

Who Was She?

- Queen of the Holkar Dynasty (Malwa region, Madhya Pradesh)
- Born in Chondi, Maharashtra into a Dhangar Hindu family
- Trained in administration, diplomacy, and warfare under the guidance of Malhar Rao Holkar and Gautama Bai.

Key Achievements:

- Established Maheshwar as the Holkar capital — a hub of art, culture, and industry
- Promoted the Maheshwari saree industry with unique bugdi weave
- Practiced good governance, focused on social welfare and public infrastructure

Military Role:

- Led a successful military campaign on Gwalior in 1765, as instructed by her father-in-law

Cultural Legacy:

- Patron of scholars like Moropant, Ananta Gandhi, and Khushali Ram
- Built and renovated hundreds of temples and dharmashalas across India
- Most notable: Restoration of Kashi Vishwanath Temple in 1780

Legacy: Ahilyabai is remembered as a saintly ruler, compassionate leader, and protector of Hindu dharma and culture.

NAMASTE Scheme: Empowering Sanitation Workers

Context: The Central Government signed a Letter of Agreement (LoA) with the UNDP to boost access to finance and technology for waste pickers under the NAMASTE Scheme.

What is NAMASTE? - NAMASTE stands for National Action for Mechanised Sanitation Ecosystem.

It is a Central Sector Scheme launched to improve the lives of sanitation workers, especially:

- Safai Karamcharis
- Manual Scavengers
- Waste Pickers

Replaces:

The earlier Self-Employment Scheme for Rehabilitation of Manual Scavengers (SRMS).

Ministries Involved:

- Ministry of Social Justice & Empowerment
- Ministry of Housing & Urban Affairs

Key Features:

- Focus on mechanised cleaning, safety, and dignity of sanitation workers
- Special focus on waste pickers, aiming to identify and support 2.5 lakh individuals
- Digital profiling and registration to formalize employment and provide welfare benefits

Why It Matters:

The scheme promotes social justice, technology-driven sanitation, and better livelihood opportunities for one of India's most vulnerable communities.

Ayurveda Day – Now on 23rd September

Context: The Government of India has fixed 23rd September as the official date to celebrate Ayurveda Day every year.

Why this Change?

- Earlier, Ayurveda Day was celebrated on Dhanteras, which falls on a different date each year (in October–November), making the celebration inconsistent.
- A fixed date brings uniformity and better planning.

Why 23rd September?

- It aligns with the autumnal equinox—a day when day and night are almost equal.
- Symbolically, this reflects Ayurveda's core principle of balance between body, mind, and nature.

Important Days – May 2025

Important Days – May 2025

Date	Day	Significance	Theme 2025
May 3	World Press Freedom Day	Promotes press freedom and safety of journalists.	*"Reporting in the Brave New World – The Impact of AI on Press Freedom and Media"*
May 10	World Migratory Bird Day	Highlights the need to protect migratory birds and their habitats.	*"Creating bird-friendly cities & communities"*
May 11	National Technology Day (India)	Marks India's 1998 nuclear tests and celebrates progress in science & tech.	*"YANTRA – Yugantar for Advancing New Technology, Research & Acceleration"*
May 22	International Day for Biological Diversity	Spreads awareness about the importance of conserving biodiversity.	*"Harmony with nature and sustainable development"*
May 29	International Day of UN Peacekeepers	Honours peacekeepers and remembers those who lost their lives in missions.	*"The Future of Peacekeeping"*
May 31	World No Tobacco Day	Warns about the health risks of tobacco and nicotine use.	*"Unmasking the Appeal: Exposing Industry Tactics on Tobacco and Nicotine Products"*

Awards in News – 2025

58th Jnanpith Award

- Winners: Urdu poet Gulzar and Sanskrit scholar Jagadguru Rambhadracharya.
- About: India's highest literary award, given annually since 1965 by Bharatiya Jnanpith.
- Eligibility: Indian citizens writing in 22 Scheduled Languages and English.

World Food Prize 2025

- Winner: Brazilian scientist Mariangela Hungria.
- Work: Reduced chemical fertiliser use; developed biological seed/soil treatments.
- About: Known as the "Nobel for Food and Agriculture", established in 1986 by Norman Borlaug.
- Prize: $500,000, first awarded to Dr. M.S. Swaminathan (1987).

International Booker Prize 2025

- Winner: Banu Mushtaq (Kannada author) for her short story collection Heart Lamp.
- About: Honors a single book translated into English and published in UK/Ireland.
- Prize: £50,000, shared between author and translator.
- Purpose: Promotes literary translation and global voices.

Gallantry Awards 2025

- Conferred by: President Droupadi Murmu.
- Awards Given: 6 Kirti Chakras, 33 Shaurya Chakras, including 11 posthumously.
- About: Given for acts of bravery by Armed Forces, Police, and civilians.
- Instituted: 1950 (war-time), 1952 (peace-time).
- Announced: On Republic Day and Independence Day.

Major Dhyan Chand Khel Ratna Award 2025

- Winners: Satwiksairaj Rankireddy & Chirag Shetty (Badminton).
- About: India's highest sports award, named after hockey legend Major Dhyan Chand.
- Prize: ₹25 lakh, medal, and certificate.
- For: Outstanding international performance in the last 4 years.

Padma Awards 2025

- Presented by: President Droupadi Murmu to 71 awardees.
- Categories:
  - Padma Vibhushan (7): Exceptional & distinguished service.
  - Padma Bhushan (19): Distinguished service of a high order.
  - Padma Shri (113): Distinguished service in any field.
- Instituted: 1954, announced every year on 26th January.
- Fields: Art, literature, science, sports, medicine, public affairs, etc.